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ABSTRACT

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Volume II - Technical Report

AN EVALUATION OF POLICY RELATED RESEARCH ON POSTSECONDARY EDUCATION FOR THE DISADVANTAGED

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ABSTRACT

The purpose of this study was to identify, review and assess the literature concerned with postsecondary education of disadvantaged youth, for internal validity, external validity and policy utility. The scholarship in this area fell into two categories:

- _Basic research_ on the variables which affect the entrance, persistence, and achievement of students from disadvantaged environments, and
- _Evaluative research_ which deals with the equity, effectiveness and efficiency of programs designed to counteract the impact of these variables.

While basic research has been generally adequate, evaluative research on programs has been commonly deficient in measurement instruments; in the failure to measure effectiveness, efficiency, and equity in terms of immediate program objectives; and in the lack of systematic information and feedback systems.

Research on causal variables and evaluative research on compensatory programs has been consistent in identifying lack of basic academic skills and poor study habits as the most powerful limiting factors in equalizing educational opportunities for the disadvantaged. Despite many postsecondary institutional policy changes, and billions of dollars in government financial support, academic high risk students have had the least chance of sharing the benefits postsecondary education, training, and certification provided for entrance into the more valued occupations and professions.

Competency in oral and written communication and basic reading and math skills cannot be left to chance. Specially-trained personnel are needed to staff developmental skills programs incorporated into the regular academic schedule. The findings of this study point in one major direction--the need for a federally sponsored, nationally integrated competency-based developmental skills program on all levels of education: elementary, secondary, and postsecondary. The report is organized into two volumes: Volume I--"Executive Summary," and Volume II--"Main Report and Appendices."

FOREWORD

This evaluation of policy-related research on post-secondary education is one of 20 in a series of projects on the Evaluation of Policy-Related Research in the Field of Human Resources, funded by the Division of Social Systems and Human Resources in the Research Applied to National Needs (RANN) Program of the National Science Foundation.

A large body of policy related research on human resources has been created over the last quarter century. However, its usefulness to decision makers has been limited because it has not been evaluated comprehensively with respect to technical quality, usefulness to policy makers, and potential for codification and wider diffusion. In addition, this research has been hard to locate and not easily accessible. Therefore, systematic and rigorous evaluations of this research are required to provide syntheses of evaluated information for use by public agencies at all levels of government and to aid in the planning and definition of research programs.

Recognizing these needs, the Division of Social Systems and Human Resources issued a Program Solicitation in January 1973 for proposals to evaluate policy-related research in 21 categories in the field of human resources. This competition resulted in 20 awards in June 1973.

Each of the projects was to: 1) Evaluate the internal validity of each study by determining whether the research used appropriate methods and data to deal with the questions asked; 2) Evaluate the external validity of the research by determining whether the results were credible in the light of other valid policy-related research; 3) Evaluate the policy utility of specific studies or sets of studies bearing on given policy instruments; 4) Provide decision makers, including research funders, with an assessed research base for alternative policy actions in a format readily interpretable and useable by decision makers.

Each report was to include an analysis of the validity and utility of research in the field selected, a synthesis of the evidence, and a discussion of what, if any, additional research is required.

The following is a list of the awards showing the research area evaluated, the organization to which the award was made, and the principal investigator.

(1) An Evaluation of Policy Related Research on New Expanded Roles of Health Workers - Yale University, School of Medicine, New Haven, Connecticut, 06520; Eva Cohen

(2) An Evaluation of Policy Related Research on the Effectiveness of Alternative Allocation of Health Care Manpower - Interstudy, 123 East Grant St., Minneapolis, Minnesota, 55403; Aaron Lowin

(3) An Evaluation of Policy Related Research on Effects of Health Care Regulation - Policy Center, Inc., Suite 500, 789 Sherman, Denver, Colorado, 80203; Patrick O'Donoghue

(4) An Evaluation of Policy Related Research on Trade-Offs Between Preventive and Primary Health Care - Boston University Medical Center, Boston University School of Medicine, Boston, MA, 02215; Paul Gertman

(5) An Evaluation of Policy Related Research on Effective-

ness of Alternative Programs for the Handicapped-Rutgers University, 165 College Avenue, New Brunswick, New Jersey, 08901; Monroe Berkowitz

(6) An Evaluation of Policy Related Research on Effects of Alternative Health Care Reimbursement Systems - University of Southern California, Department of Economics, Los Angeles, California, 9007; Donald E. Yett

(7) An Evaluation of Policy Related Research on Alternative Public and Private Programs for Mid-Life Redirection of Careers - Rand Corporation, 1700 Main Street, Santa Monica, California, 90406; Anthony H. Pascal

(8) An Evaluation of Policy Related Research on Relations between Industrial Organization, Job Satisfaction, and Productivity, Brandeis University, Florence G. Heller Graduate School for Advanced Studies in Social Welfare, Waltham, MA, 02154; Michael J. Brower

(9) An Evaluation of Policy Related Research on Relations between Industrial Organization, Job Satisfaction and Productivity - New York University, Department of Psychology, New York, New York, 10003; Raymond A. Katzell

(10) An Evaluation of Policy Related Research on Productivity, Industrial Organization and Job Satisfaction Case Western Reserve University, School of Management, Cleveland, Ohio, 44106; Suresh Srivastva

(11) An Evaluation of Policy Related Research on Effectiveness of Alternative Methods of Reduce Occupational Illness and Accidents - Westinghouse Behavioral Safety Center, Box 948, American City Building, Columbia, Maryland, 21044; Michael Pfeifer

(12) An Evaluation of Policy Related Research on the Impact of Unionization on Public Institutions - Contract Research Corporation, 25 Flanders Road, Belmont, Massachusetts; Ralph Jones

(13) An Evaluation of Policy Related Research on Projection of Manpower Requirements - Ohio State University, Center for Human Resources Research, Columbus, Ohio, 43210; S. C. Kelley

(14) An Evaluation of Policy Related Research on Effectiveness of Alternative Pre-Trial Intervention Programs - ABT Association, Incorporated, 55 Wheeler Street, Cambridge, Massachusetts, 02138; Joan Mullen

(15) An Evaluation of Policy Related Research on the Effectiveness of Pre-Trial Release Programs - National Center for State Courts, 1660 Lincoln Street, Denver, Colorado, 80203; Barry Mahoney

(16) An Evaluation of Policy Related Research on Effectiveness of Volunteer Programs in the Area of Courts and Corrections - University of Illinois, Department of Political Science, Chicago Circle, Box 4348, Chicago, Illinois, 60680; Thomas J. Cook

(17) An Evaluation of Policy Related Research on Effectiveness of Juvenile Delinquency Prevention Program - George Peabody College for Teachers, Department of Psychology, Nashville, Tennessee, 37203; Michael C. Dixon

(18) An Evaluation of Policy Related Research on Exercise of Discretion by Law Enforcement Officials - College of William and Mary Metropolitan Building, 147 Granby Street, Norfolk, Virginia, 23510; W. Anthony Fitch

(19) An Evaluation of Policy Related Research on Exercise of Police Discretion - National Council of Crime and Delinquency Research Center, 609 2nd Street, Davis, California, 95616; M. G. Neithercutt

(20) An Evaluation of Policy Related Research on Post Secondary Education for the Disadvantaged - Mercy College of Detroit, Department of Sociology, Detroit, Michigan, 48219; Mary Janet Mulka

A complementary series of awards were made by the Division of Social Systems and Human Resources to evaluate the policy-related research in the field of Municipal Systems, Operations, and Services. For the convenience of the reader, a listing of these awards appears below:

(1) Fire Protection - Georgia Institute of Technology, Department of Industrial and Systems Engineering, Atlanta, Georgia, 30332; D. E. Fyffe

(2) Fire Protection - New York Rand Institute, 545 Madison Avenue, New York, New York, 10022, Arthur J. Swersey

(3) Emergency Medical Services - University of Tennessee, Bureau of Public Administration, Knoxville, Tennessee, 37916, Hyrum Plaas

(4) Municipal Housing Services - Cogen Holt and Associates, 956 Chapel Street, New Haven, Connecticut, 06510; Harry Wexler

(5) Formalized Pre-Trial Diversion Programs in Municipal and Metropolitan Courts - American Bar Association, 1705 DeSales Street, N.W. Washington, D. C., 20036; Roberta-Rovner-Pieczenik

(6) Parks and Recreation - National Recreation and Park Association, 1601 North Kent Street, Arlington, Virginia, 22209, The Urban Inst., 2100 M St., N.W., Washington, D. C. 20037; Peter J. Verhoven

(7) Police Protection - Mathematica, Inc., 4905 Del Ray Avenue, Bethesda, Maryland, 20014; Saul I. Gass

(8) Solid Waste Management - Massachusetts Institute of Technology, Department of Civil Engineering, Cambridge, Massachusetts, 02139; David Marks

(9) Citizen Participation Strategies - The Rand Corporation, 2100 M. Street, N. W., Washington, D. C. 20037; Robert Yin

(10) Citizen Participation: Municipal Subsystems - The University of Michigan, Program in Health Planning, Ann Arbor, Michigan, 48104; Joseph L. Falkson

(11) Economic Development - Ernst & Ernst, 1225 Connecticut Avenue, N.W., Washington, D. C. 20036; Lawrence H. Revzan

(12) Goal of Economic Development - University of Texas-Austin, Center for Economic Development, Department of Economics, Austin, Texas, 78712; Niles M. Hansen

(13) Franchising and Regulation - University of South Dakota, Department of Economics, Vermillion, South Dakota, 57069; C. A. Kent

(14) Municipal Information Systems - University of California, Public Policy Research Organization, Irvine, California, 92664; Kenneth L. Kraemer

(15) Municipal Growth Guidance Systems - University of Minnesota, School of Public Affairs, Minneapolis, Minnesota, 55455; Michael E. Gleeson

(16) Land Use Controls - University of North Carolina, Chapel Hill, Center for Urban and Regional Studies, Chapel Hill, North Carolina, 27514; Edward M. Bergman

(17) Land Use Controls - The Potomac Institute, Incorporated, 1501 Eighteenth Street, N. W., Washington, D. C. 20036; Herbert M. Franklin

(18) Municipal Management Methods and Budgetary Processes - The Urban Institute, 2100 M. Street, N. W., Washington, D. C., 20037; Wayne A. Kimmel

(19) Personnel Systems - Georgetown University - Public Service Lab., Washington, D. C. 20037; Selma Mushkin

Copies of the above cited research evaluation reports for both Municipal Systems and Human Resources may be obtained directly from the principal investigator or from the National Technical Information Service (NTIS) U. S. Department of Commerce, 5285 Port Royal, Springfield, Virginia, 22151 (Telephone: 703/321-8517)

This research evaluation by Mary Janet Mulka of Mercy College of Detroit and Edmund J. Sheerin of the University of Detroit on An Evaluation of Policy Related Research on Post-Secondary Education for the Disadvantaged was prepared with the support of the National Science Foundation. The opinions, findings, conclusions, or recommendations are solely those of the authors.

It is a policy of the Division of Social Systems and Human Resources to assess the relevance, utility, and quality of the projects it supports. Should any readers of this report have comments in these or other regards, we would be particularly grateful to receive them as they become essential tools in the planning of future programs.

Lynn P. Dolins
Program Manager
Division of Social Systems
and Human Resources

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CHAPTER I

INTRODUCTION

Objectives

This study has aimed to evaluate the research literature concerned with postsecondary education of disadvantaged youth. The evaluation has been limited to that scholarship which is either currently or potentially available to decision makers. The broad objectives of this report are:

- to systematically and rigorously evaluate that literature concerned with equalizing the educational opportunities of the disadvantaged with those of the advantaged:
- to provide a more rigorous basis for future research projects aimed at equalizing educational opportunities; and
- to make policy related research literature on equalizing educational opportunities more usable and accessible to policy makers.

A series of specific tasks were defined to accomplish these broad objectives: (1) to assess the internal and external validity and consistency of research dealing with equalizing educational opportunities for postsecondary education; (2) to establish principles and criteria for judging the policy relevance of particular studies dealing with postsecondary education and of sets of related research bearing on given policy instruments; and (3) to provide a design for dissemination and utilization of results.

Definitions

Because the report deals with the evaluation of policy related research which bears on equalizing the educational opportunities of advantaged and disadvantaged students on the postsecondary level, the major variables need to be defined: (1) disadvantaged, (2) equalizing educational opportunities, (3) postsecondary, and (4) policy research.

Disadvantaged

As used in postsecondary education, the term "disadvantaged" is vague and inconsistent. There is no single comprehensive definition which contributes toward the development of a tight, systematic body of knowledge. "Disadvantaged" remains, therefore, the term generally used to designate groups of students from socially or economically deprived backgrounds who, according to the research, have least opportunity of getting into a postsecondary institution and least chance of success if admitted. Many such students constitute a high risk by traditional admissions criteria; many are from certain racial or ethnic minorities. The term is, however, broader than racial or ethnic minority status.

Other labels have been used to designate groups of populations who differ from the traditional postsecondary student: high-risk, marginal, academically unsuccessful, new students, special students, underachievers, and the like. All these labels identify specific students whose erratic high school records, economic plight, unimpressive standardized test scores, and race/culture/class distinctions succeed in placing them at a disadvantage in competing with the vast majority of students applying for entry into college. Disadvantaged students appear to have little prognosis for success in school or on the job, and little chance for upward social mobility.

One can conclude from the number of definitions, that there are degrees of disadvantagedness, thereby forming different classes or groups of disadvantaged students. There must be, therefore, different means of equalizing educational opportunities for these diverse groups. With regard to the classes of disadvantaged and the means of equalizing educational opportunities for these groups of students, two distinct tasks arise: first, that of giving to all students equal financial opportunity for admission to the postsecondary institution of their choice; and second, that of providing for all those who are admitted lacking basic skills, motivation, etc., an equal opportunity for completing the program entered.

The designation "disadvantaged" is relative. A disadvantaged student in a more selective college may not be disadvantaged in a non-selective institution. A high risk student at Harvard or Berkeley could have an average to above average SAT/ACT score for many an institution with less rigorous criteria or open admissions. The following diagram illustrates the two categories of disadvantaged students admitted to a given institution according to degrees of risk of failure or dropping out.

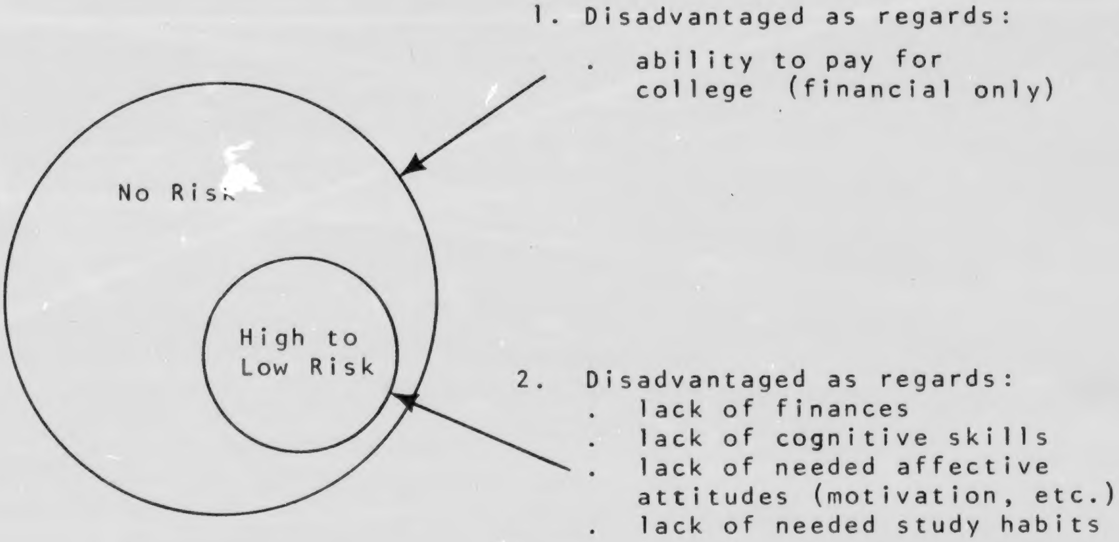
1. Disadvantaged as regards:
. ability to pay for college (financial only)
No Risk
High to Low Risk
2. Disadvantaged as regards:
. lack of finances
. lack of cognitive skills
. lack of needed affective attitudes (motivation, etc.)
. lack of needed study habits

FIGURE 1.
DISADVANTAGED ACCORDING TO DEGREE OF RISK OF FAILING OR DROPPING OUT

Lack of the financial means necessary to attend a postsecondary institution is the most extensive variable common to the category of disadvantaged students. The disadvantaged population contains many subsets progressively smaller in extension as characteristics are accumulated or added to each other.

Within the set of those financially disadvantaged are those who are further disadvantaged because of deprivations in their personality system, their ethnic or racial (minority) system, and/or their residential or location system.

The Venn diagram which follows is comprehensive of the various sets and subsets of "disadvantagedness." It clearly isolates the group of populations who become progressively more disadvantaged and less numerous as the subsets (groups) overlap toward the center. (Figure 2.)

The Financially Disadvantaged Set (A)

This set contains all the subsets (groups) of disadvantaged populations: namely, those who cannot financially afford postsecondary education.

The Socio-Cultural Disadvantaged Set (B)

This set includes those who have such characteristics as low social and class status, with parents having poor education, low income, limited employment and mobility.

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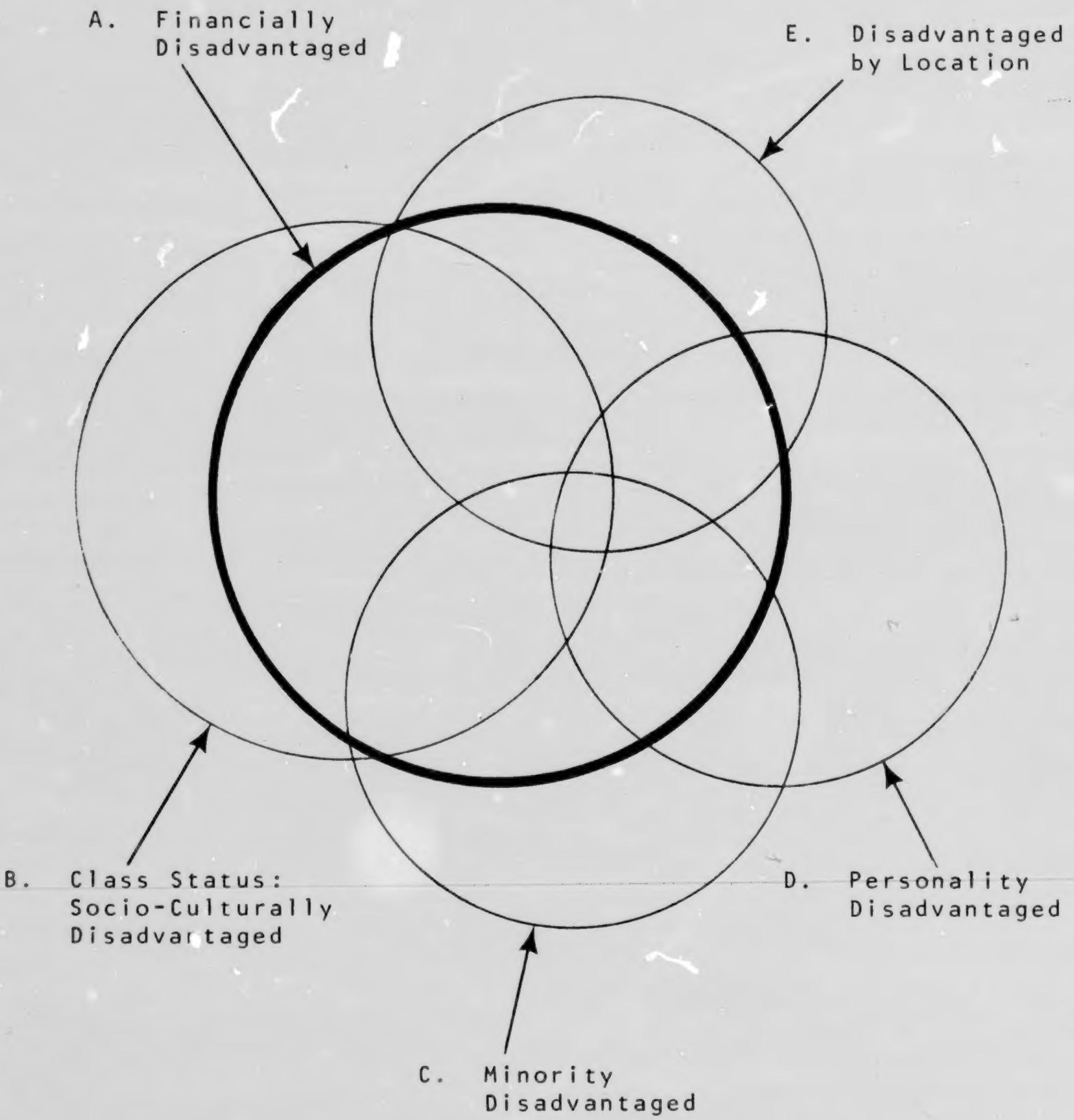
FIGURE 2.

VENN DIAGRAM OF DISADVANTAGED GROUPS OF POPULATIONS


A. Financially Disadvantaged
E. Disadvantaged by Location
B. Class Status: Socio-Culturally Disadvantaged
D. Personality Disadvantaged
C. Minority Disadvantaged

The Personality Disadvantaged Set (C)

Personality here is taken in its broadest sense to refer to that network of characteristics and limitations internal to the individual which affect his human behavior. We are especially interested in personality deficiencies, such as:

- lack of educational skills (study habits)
- lack of cognitive skills (developmental tasks)
- lack of affective development (motivation, aspirations, etc.)
- lack of personal achievement

Personality traits (C) are analytically distinct from sets (A) and (B). There is, however, a strong correlation and cumulative overlapping among these three sets, although some students who are financially poor, set (B), may not lack the personality traits defined in set (C). Therefore, they may not participate in any special supportive services, other than a scholarship or other form of financial aid.

Racial and Ethnic Disadvantaged Set (D)

Afro-Americans, Puerto Rican-Mexican Americans, and Native Americans are often handicapped by the traits in sets (A), (B), and (C), and by other deprivations and traits not faced by the white majority. There are many in these groups, however, who do not fall into the disadvantaged category, either financially, socio-culturally, or personality-wise.

Location Set (E)

Location or distance may put a person into a disadvantaged set if he has no access to any institution of his choice for postsecondary education. This physical disadvantage includes students from areas where public transportation is not easily available or convenient.

While this list of definitions may appear unnecessary, we feel our cumulative definition has the substance of most of the other definitions and could serve to fulfill the need for one comprehensive definition. (Figure 3.) Presently the lack of specificity is hindering the development of a systematic integrated body of knowledge concerning the educationally disadvantaged. From a scientific point of view the utilization of several definitions has brought about entirely discrete and separate findings precisely because each definition is based on a distinctive operational definition, logically derived from one of many formal definitions.

Postsecondary Education

The third important variable is "postsecondary education" itself. To some, the term is synonymous with "higher education."

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SYSTEM		MAJOR VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
SOCIOCULTURAL	I	Socioeconomic Status (SES)	X										
	II	Minority Status	X	X									
	III	Female Status	X	X	X								
	IV	Lack of Parental Encouragement	X	X	X	X							
	V	High School Curriculum	X	X	X	X	X						
PERSONALITY	VI	Low Academic Ability	X	X	X	X	X	X					
	VII	Lack of basic skills	X	X	X	X	X	X	X				
	VIII	Poor Study Habits	X	X	X	X	X	X	X	X			
	IX	Poor Self-Image	X	X	X	X	X	X	X	X	X		
	X	Low Motivation	X	X	X	X	X	X	X	X	X	X	
ECOLOGICAL	XI	Location	X	X	X	X	X	X	X	X	X	X	X

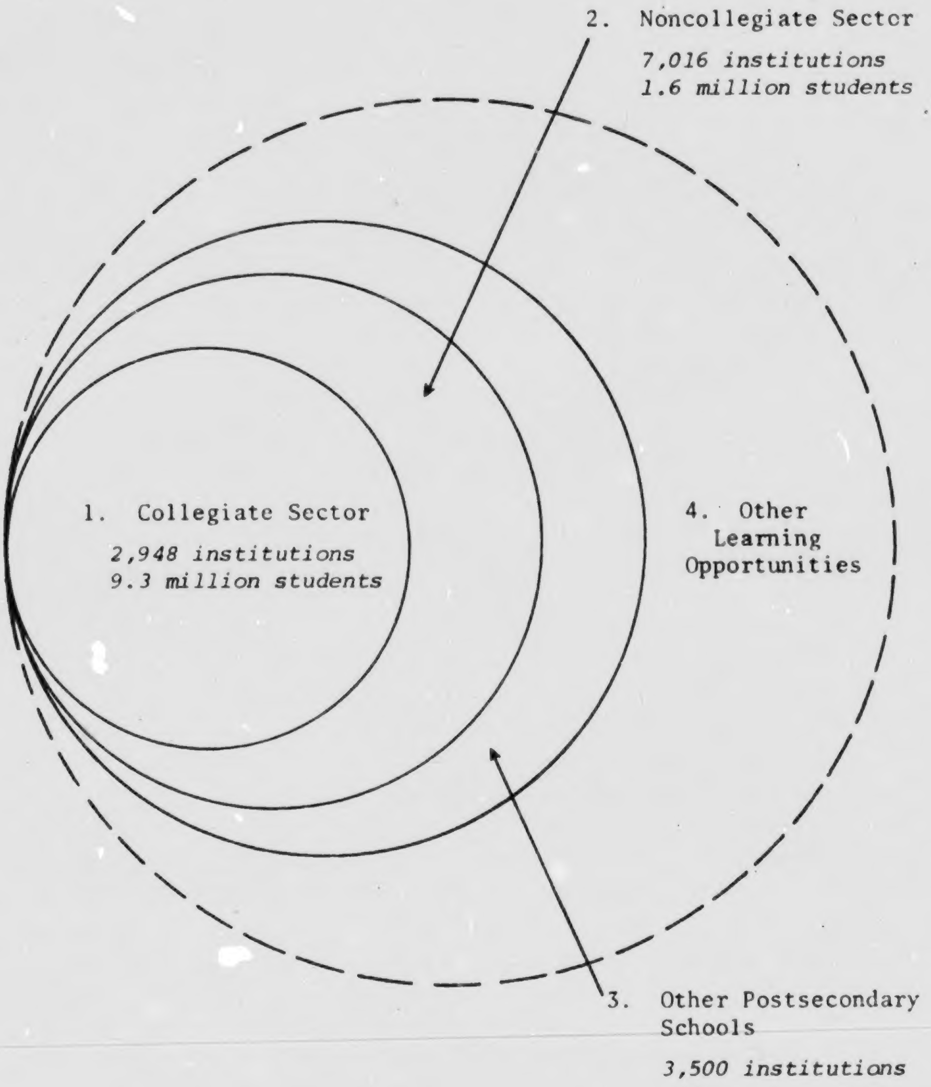
FIGURE 3. CUMULATIVE INDEX OF DISADVANTAGED VARIABLES

To others, it encompasses the whole spectrum of institutions, agencies, and activities that are concerned in some fashion with education beyond the high school level.

The 1972 Amendments of the Higher Education Acts broaden the concept of "higher education" to include an educational institution in any State which admits as regular students, persons having either a certificate of graduation from a school providing secondary education or a recognized equivalent of such a certificate. It is a term which can be applied to all branches of postsecondary education including vocational schools, community colleges, four-year colleges, universities, and professional schools.

The Commission on Financing of Postsecondary Education (1973) proposed a division of four major sectors: a collegiate sector, a noncollegiate sector, a third sector made up of all other postsecondary institutions, and a fourth sector encompassing the vast array of formal and informal learning opportunities offered by agencies and institutions that are not primarily engaged in providing structured educational programs. (See Figure 4.

The scope of the postsecondary educational enterprise is indeed very broad. (See Appendix A) There are many formal and


2. Noncollegiate Sector
7,016 institutions
1.6 million students
1. Collegiate Sector
2,948 institutions
9.3 million students
4. Other
Learning
Opportunities
3. Other Postsecondary
Schools
3,500 institutions

Source: Financing Postsecondary Education in the United States by the National Commission on the Financing Postsecondary Education (1973 p.19)

Figure 4. The Postsecondary Education Enterprise, 1972-1973

informal learning opportunities offered by various organizations and groups, but because there is no comprehensive listing or study of such opportunities, they were excluded from our study. Schools teaching such skills as social dancing, skiing, swimming are often licensed by state agencies that enforce professional and vocational standards, but data on these programs also is limited and for all practical purposes unavailable. The most suitable definition for our study was the working definition proposed by the Commission on Financing of Postsecondary Education (1973):

> Postsecondary education consists of formal instruction, research, public service, and other learning opportunities offered by educational institutions that primarily serve persons who have completed secondary education or who are beyond the compulsory school attendance age and that are accredited by agencies officially recognized for that purpose by the U.S. Office of Education or are otherwise eligible to participate in federal programs. (p. 20)

Equalizing Educational Opportunities

Various interested parties and groups see equality of educational opportunity in different ways. Christopher Jencks (1972) in his book Inequality precipitated a discussion resulting in a controversy over the distinction made between the concepts "equality of opportunity" and "equality of results." James Coleman (1968) in his article, "The Concept of Equality of Educational Opportunity," uses an evolutionary perspective in order to show how the meaning of equal educational opportunity has changed over the past century and a half. Whereas the responsibility for providing equal educational opportunity once resided within the individual family unit, Coleman feels that both today and in the future, society and its educational institutions are obligated to take on this responsibility. The idea of compensatory education is strongly advocated by Edmund Gordon (1966). Some of the ways he suggests for educational institutions to begin creating equality of opportunity involve compensating for the unequal learning achievements and patterns children bring to the classroom. This controversy between equality of results and equality of opportunity calls into question certain propositions which, until the Coleman report, few social scientists and few liberals dreamed of doubting: principally, that one of the main causes of inequality in American life has been inequality in education, and that education could be used as a tool to reduce inequality in society.

Modern technological societies are increasingly more dependent on higher education in their allocation of social position. Entrance into valued occupations is restricted to those whose educational attainments beyond secondary school are presumed to have given them the habits of thought, attitudes, and level of knowledge that these occupations require.

It has long been accepted that training for the higher professions should be an almost exclusive monopoly of colleges and universities. More recently this near monopoly has been extended to include many subprofessional and technical occupations as well. Even the training required for the skilled blue-collar and lower level white-collar occupations, formerly acquired on the job, through apprenticeship, or in vocational curricula in high schools, has increasingly been shifted to postsecondary institutions.

Many criticisms have been levied against what is regarded as an overemphasis on credentialism and the certification role that colleges and other educational institutions perform. (Miller and Reissman, 1969; Berg, 1970; Newman et al., 1971.) This criticism is particularly persuasive whenever it can be shown that the educational requirements for entry into an occupation have little bearing on the activities of that occupation. It is especially unfortunate, however, that when such requirements are artificially high, many otherwise qualified persons from disadvantaged backgrounds are excluded from desirable occupations. Acknowledging the trends that exist today, those who fail to obtain training past their secondary school education, for whatever reasons, will be severely disadvantaged in the competition for the more valued jobs and in many other areas of social life as well.

With occupational selection, training, and certification carried out mainly through the schools, and particularly in postsecondary institutions, there are many who argue that life chances will not be equal until opportunities for advanced education beyond grade twelve are equal. Finally, there are those who feel that life chances will not be equal until there is, in addition to equality of opportunity, a flat equality of results or outcomes.

In the United States we have wide agreement that our society accepts and supports the fundamental value of equal opportunity. There is nevertheless considerable disagreement over the meaning of the concept in specific applications. Almost from the beginning the concept of educational opportunity in the United States has had a special meaning focusing on equality. It would seem, however, that while many still subscribe to this concept, few understand the assumptions implicit in it.

The concept of "equalizing" or "making equal" is an analogical concept. While keeping a common basic meaning the term must be understood to have a variety of meanings in specific applications. As with all analogical concepts, it must be differentially understood and applied when speaking of diverse situations. For instance, equalizing opportunity for entrance into postsecondary institutions and equalizing opportunities for achievement in the institution and persistence in the program selected are differential forms of equalization.

We understand the term equalizing postsecondary educational opportunities, therefore, to mean the elimination of disadvantages which hinder an individual from entering, advancing in, or completing postsecondary education, because of socio-economic conditions, sociocultural conditions, or personality limitations, due to a lack of cognitive and/or affective skills, or high school accomplishments. We exclude from our definition certain categories of disadvantaged; for example, those who are mentally ill or those who are physically handicapped.

The term "equalizing educational opportunities" in our evaluation implies:

- Provisions for equal access to an institution of one's choice;

- Provisions for achievement through remedying prior deficiencies by special supportive programs, such as counseling, remedial courses, developmental programs, and special curricula; and
- Provisions for persistence to graduation or credentials and competencies to provide entrance into valued occupations and opportunities in the supra-society.

Postsecondary institutions are making efforts to identify potentially able students from the socially and economically disadvantaged groups within our society and to provide the necessary assistance for these students to achieve degrees, certification, and better chances for jobs and social class mobility. The general goals are not often clearly stated in measureable terms, but they do exist nonetheless. Probably the recognition by postsecondary institutions that many potentially able college students are handicapped by socially disadvantaged environments and/or inadequate pre-collegiate academic experiences, and that access to institutions past the secondary level is impossible without special considerations, has constituted one of the most dynamic trends in American postsecondary education. The task of translating the objectives of equality of educational opportunity, however, into operational terms, in order to be more effective, efficient, and equitable, still remains. Likewise, there still remains the task of examining whether or not postsecondary institutions properly belong in the business of remediation--or whether we should instead hold the elementary and secondary schools accountable for the tasks traditionally theirs, particularly in the basic skill areas (reading, writing, and arithmetic).

Policy Related Research and Evaluation

Several social scientists have given their definitions of policy related research. Walter Williams, Policy Research and Analysis (1971, p. 13), makes a distinction between policy related research and policy analysis. He defines policy analysis as a "policy oriented approach, method, and collection of techniques of synthesizing available information including the results of research." Policy analysis for Williams, then, is the analysis and synthesis of information on policy alternatives and preferences, stated in terms that are comparable, quantitative, and qualitative, as a basis or guide for policy decisions; and, conceptually, it does not include the gathering of information. On the other hand, Williams uses the term policy related research to delineate all studies using scientific methodologies to describe phenomena and/or to determine relationships among them. Within this broad category of policy oriented research, he distinguishes two types:

outcome evaluations, and experimental and developmental projects.

Outcome evaluations assess the effects of an organization's existing projects or programs on their direct participants, other designated groups, and/or specific institutions. Research, which Williams puts into the category of experimental and developmental projects, assesses the merits of new ideas which have their programmatic implications in terms of outcomes in a setting corresponding at least in part to actual field operating conditions. He states that both of these types of research can be placed in a larger category, that of "field outcome assessments," in which the distinguishing characteristic is that the measurement of outcomes takes place either under actual operating conditions or under conditions that reflect in some reasonable degree the problems associated with operating actual programs.

James Coleman, "Policy Research in the Social Sciences," (1972, p. 3) defines policy research by its characteristics:

> The defining characteristics of policy research are two: the research problem originates outside the discipline, in the world of action; and the research results are destined for the world of action; outside the discipline. The special properties of policy research stem from the different properties of the disciplinary world

> and the world of action, and from the translation problems involved in moving between these two worlds.

Coleman's criticism of "applied research" helps to distinguish between applied research and policy research. He feels that a great amount of applied research is funded which is neither discipline research nor very relevant to policy problems. It is research on general social problems, such as drugs, delinquency, the functioning of schools, the patterns of residential mobility of blacks and whites in a city, and so on through an enormous range of social problems. This research is sometimes of value to the disciplines involved, and perhaps of some long-range value to policy. But because the research was formulated in the absence of specific policy questions it is of little aid in policy formation.

There is a severe shortage of the data, techniques, and researchers needed for producing policy-relevant studies--that is, studies pertaining directly to policy factors over which the decision-maker has control, particularly micro-positive studies treating specifically theoretical problems of program conceptualization, design, operation, and measurement. The increasing demand in questions of social policy for systematic information that will help guide policy is beginning to change this situation.

In this report policy related research contains all research and all stages of research which are directly related to policy making. We will classify policy related research according to its subject matter. If the subject of the study is a policy variable(s), then the policy research is basic policy research; if the subject of study is an experimental program or program components in relation to outcomes, it is evaluative policy research. The term policy analysis is used to classify studies which analyze primary or secondary data and relate their analysis to policy making. Williams confined 'policy analysis' to refer to analysis, synthesis, and interpretation of only secondary data in relation to policy making. The term in this report, however, is used to include the analysis, synthesis, and interpretation of primary data as well.

William H. Sewell from the University of Wisconsin demonstrated how basic research can be related to policy. In his article, "Inequality of Opportunity for Higher Education" (October, 1971), Sewell reviewed the research he and his associates had done on equality of opportunity, and suggested some of its implications for public policy. He first summarized the findings from his own studies, then discussed some of the results of the team's efforts to elucidate the complex relationships between socioeconomic background and educational attainment, and finally considered their policy implications. Theoretically, the problem of basic research, therefore, can be handled by combining the inputs of various analytic studies into a synthesized recommendation. Few researchers have done it, but it is possible and practical.

From Coleman we borrow the distinction between policy variables and situational variables. Policy variables are those variables which can be or have been amenable to policy control. The term situational variable is more apt to be misleading because it may be interpreted as referring to all aspects of situations, instead of only to those which cannot be directly manipulated. In the absence of a better term, however, Coleman's choice of terms will be accepted, insofar as this distinction between variables is critical (1972 p. 5).

Policy variables are those variables which can be manipulated and are directly amenable to policy control. Situational variables can be neither manipulated or subjected to policy control. They do, however, play a part in the causal structure which leads to the outcome variables, and thus must be controlled in the analysis or the design, in spite of the fact that they are not subject to policy control. Policy-makers are hedged in by the boundaries of the systems within which they operate, except insofar as the system itself is within their capacity to manipulate.

The limits of the real world--biological, personality structures, society, and culture--conjoin to isolate the policy variables from the situational variables at a given period of time. Certainly the policymaker is interested in knowing the consequences of situational variables, for, although he may not be able to alter the variable directly, he may be able indirectly to counteract its effects: For instance, the policymakers cannot alter a person's sex (situational variable), but they may alter attitudes towards sex or actions based on these attitudes (policy variable). Likewise, socioeconomic status, composed of parental income, occupation, and years of education (situational variables), is not directly manipulable, but governmental policymakers may legislate monies in forms of grants, loans, etc., to counteract some of the effects of socioeconomic status (policy variables).

Policymakers are especially interested in knowing which of these causes are within their capacity to manipulate. This distinction between variables which are "moveable" and those which are not is pivotal to our analysis.

Selection and Evaluation of the Literature

Selection of the Literature

In order to assess the body of policy related research literature our first task was to construct an inventory of the scholarship which is either currently or potentially available. The Educational Resources Information Center (ERIC) was utilized as the primary data source. Bibliographies were also obtained from books, research reports, reviews of literature and the ERIC Information Retrieval Center on the Disadvantaged (ERIC-IRCD). Research and development centers were contacted for information on current research.

Another procedure used to select research was a questionnaire with a selected bibliography. This instrument was sent to a stratified proportionate sample of postsecondary institutions to determine what type and category of research did indeed influence policy in their institutions. The respondents' choices and suggestions were intended to be used as a check and to assure that policy relevant research was included in our evaluation. Likewise a bibliography was sent to fifty experts (authors of books and articles on equalizing educational opportunities). Forty national and 119 state legislators serving on education committees, as well as 54 persons who held positions on state educational commissions, were also requested to identify what they regarded as the most influential literature on the disadvantaged. The experts' responses may be categorized in the following manner:

TABLE 1. CATEGORIES OF RESPONSES FROM EXPERTS

Response	Number
1. Made comments without checking bibliography.	8
2. Made comments and checked bibliography.	11
3. No comments, but checked bibliography.	9
4. Telephoned; bibliography not sent.	9
5. Returned; address unknown.	13
Total	50

Twenty-three of these responses were usable. From tabulating and ranking the literature checked, Table 2 was constructed. The professional esteem for James S. Coleman was evident in the ranking of his articles in first and second place. The position of Coleman was firmly established after Thomas F. Pettigrew and Daniel P. Moynihan organized the 1966-67 Harvard Seminar on the "Coleman Report" (a massive survey of 570,000 pupils 60,000 teachers and some 4,000 schools across the nation).

TABLE 2. RANK ORDER OF THE TEN MOST HIGHLY RATED WORKS BY EXPERTS

Rank Ordering	Name of Work	Frequency	Percent Returns
1	Coleman, James S., "The Evaluation of Equality of Educational Opportunity." In _On Equality of Educational Opportunity_, edited by Frederick Mosteller and Daniel Moynihan. New York: Random House. 1972.	21	91
2	Coleman, James S. "The Concept of Equality of Educational Opportunity." _Harvard Educational Review_. 38(Winter 1968) 7-22.	16	69
2	Rivlin, Alice M. "Equality of Opportunity and Public Policy." In _College Entrance Examination Board Financing Equal Opportunity in Higher Education_. New York: College Entrance Examination Board. 1970.	16	69
4	Jensen, Arthur J. "How Much Can We Boost IQ and School Achievement?" _Harvard Educational Review_. 30 (Winter 1969), 1-123.	15	65
4	Jencks, Christopher, _et al_. _Inequality: A Reassessment of the Effect of Family and Schooling in America_. Basic Books. 1972.	15	65
6	Newman, Frank (ed.). _Financing Higher Education: Alternatives for the Federal Government_. Iowa City: American College Testing Program. 1971.	13	56
7	Knoell, D.M. "Are Our Colleges Really Accessible to the Poor?" _Junior College Journal_. 39 (1968): 9-11.	11	47
7	Hartman, Robert W. "A Comment of Pechman-Hansen-Weisbrod Controversy." _Journal of_ Human Resources. 5 (Fall): 519-523.	11	47
7	Mosteller, Frederick and Daniel P. Moynihan (eds.). _On Equality of Educational Opportunity_. New York: Random House. 1972.	11	47
7	Gordon, E.W. and D.A. Wilkerson. _Compensatory Education for the Disadvantaged_. New York: College Entrance Examination Board. 1966.	11	47

It seems that authors of studies which have had national ramifications, as well as controversial writers, such as Jensen and Jencks, are more widely read than are the academic researchers, known primarily within their own disciplines and institutions.

The Carnegie Commission Reports ranked fourteenth and lower although Lewis B. Mayhew regarded the Carnegie Commission Reports on higher education, "... the most comprehensive organized attempt ever made to portray the condition of higher education, to analyze its components, and to indicate probable and desirable directions for future development." (1973, p. 1).

Only those works which ranked among the first ten are listed in Table 2. Authors were ranked according to the number of times a particular title was checked by the experts. If fifty-percent of the respondents (11 or more) marked the same article or book, that title was given a high ranking. Table 3 provides the frequency count for all works checked.

Legislators serving on education committees and members of State Education Commissions were also asked to identify the literature which influenced their thinking, discussions, and policymaking regarding the equalization of educational opportunities (Table 4.) A selected sample of 213 brought 84 responses or forty percent.

TABLE 3. RATING OF POLICY-INFLUENTIAL WORKS BY EXPERTS

Frequency of Individual Works Checks	Number of Works Checked by Experts	% Recognition by Experts
High (11 and over)	10	50% and over
Medium (6-10)	29	25-49%
Low (1-5)	48	Under 25%
None	2	0%
Total checked by experts	89	

TABLE 4. RESPONSES FROM LEGISLATORS, COMMISSIONERS OF EDUCATION

Type of Response	Legislators		Commissioners	
	National	State		
1. Checked bibliography and made comments.	2	4	3	
2. Checked bibliography and made no comments.	8	11	14	
3. Did not check bibliography but made comments.	4	8	15	
4. Bibliography checked.	0	0	5 *	
5. Returned unopened.	1	1	8	
Total received.	15	24	45	(84)
Total sent.	40	119	54	(213)
Percent Returns.	37.5%	20.0%	74.0%	
Overall Percentage of Returns from Legislators and Commissioners		40.0%		

* Category of respondent unknown.

Legislators and commissioners in general did not give a high rating to much of the literature (Table 5.) A letter from one state legislator frankly stated his legislative concerns:

> The emphasis at the state level, as far as higher education is concerned, is over the level of funding for the various colleges and universities and whether or not a particular institution should be allowed to establish a law school or medical school, for example. Almost no consideration is given to how [name of state] 's colleges are meeting the needs of the disadvantaged, as evidenced by bills that are under consideration. I could find only two bills--one a bill to train Indians as teacher aides and the other would allocate funds for women to return to college after raising a family--that would be related to this area.

TABLE 5. RATING OF POLICY-INFLUENTIAL WORKS BY LEGISLATORS AND COMMISSIONERS

Frequency of Individual Works Checked	Number of Works Checked by Legislators and Commissioners	% Recognition by Legislators
High (23 and over)	5	50% and over
Medium (11-22)	24	25-49%
Low (1-11)	60	Under 25%
None	0	0%

Total number of Works checked by Legislators and Commissioners 89

If fifty percent or more of the forty-seven respondents chose a particular title it was classified as high. Only five titles were in that category. Sixty of the eighty works listed were checked by eleven or less legislators. Legislators commented that specific works which may have been influential in their thinking were hard to find.

TABLE 6. THE FIVE MOST HIGHLY RATED WORKS BY LEGISLATORS AND COMMISSIONERS

Rank Ordering	Name of Work	Checked Frequency	Percent Returns
1	Coleman, James S. "The Evaluation of Equality of Educational Opportunity," In *On Equality of Educational Opportunity*, edited by Frederick Mosteller and Daniel Moynihan. New York: Random House. 1972.	34	72
2	Jencks, Christopher, et al. *Inequality: A Reassessment of the Effect of Family and Schooling in America*. Basic Books. 1972.	28	59
3	*Priorities in Higher Education*, The Report of the President's Task Force on Higher Education. August 1970.	24	51
4	Carnegie Commission on Higher Education. *The Capitol and the Campus*: State Responsibility for Postsecondary Education. Highstown, N.J: McGraw-Hill Book Co. April 1971.	23	48
4	Carnegie Commission on Higher Education. *Less Time, More Options: Education Beyond the High School*. New York: McGraw-Hill Book Co. January 1971.	23	48

Letters and comments made by experts on the nature and type of titles included in our selected bibliography provided further insight into the literature dealing with equalizing educational opportunity.

Inequality by Christopher Jencks:

- has some merit, but only has information, not evaluation.
- Provocative, interesting, but very weak methodologically.

Carnegie Commission:

- All of them are fairly good, but not exciting.
- Validity is questionable. May be somewhat useful.

Education and Jobs by Evar E. Berg:

- Provocative, interesting, but thesis of irrationality on part of employers in hiring is hard to swallow.

A general comment:

> I cannot and will not respond to this request. Some of the literature has had a negative impact on public policy--others a positive one.

One quotation from a legislator and another from a board commissioner capture the essence of many of the respondents' comments and letters.

> Accordingly, the impact of any particular article or research depends largely on the timing of the work, and its impact on the legislative process. For example, the "Coleman" report was important, not only because it was a massive and innovative study, but because it addresses many of the fundamental concerns involved in the very controversial cross-

district busing issue, and came at a time when this issue was highly politicized.

On the other hand, I doubt if many are too well versed on the Labor Department study, 'Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, 'Volume I. This is largely because such reports, no matter the merits, often are circular filed because they are simply too complex and detailed for any Member of Congress to digest. The only way a document such as this would make an impact would be to have it referred to either in hearings or in the development of a bill, by a leading 'actor' in the legislative process, namely, a Member of Congress, The Administration, or an interest group. As one of the authors of the Comprehensive Employment and Training Act, I can't recall this document being cited at any time.

In sum, the 'impact' of any piece of literature depends on when it is written, who wrote it, when or if it enters the 'legislative' process, and the climate of the process. In most cases impact is diffused and largely unrecognizable.

* * *

In my judgment, most educational research is of marginal value to the decision making process. It is either too narrow and self-serving or a confirmation of the obvious and trivial. Faculty people active in educational research certainly can be and are very helpful, however, I find direct contact in raising specific questions, issues of proposed programs the best vehicle. As an administrator, I am not primarily interested in why a particular direction is academically and conceptually sound, but if it is sound.

> I must further qualify by pointing out that seldom have I found people in professional education fields very helpful. If I have an economic problem, I have the best result by seeking out an economist interested in education rather than going to someone trained as a professional educator interested in economics.
>
> I close by again reiterating that your research seems to assume the value of educational research in the formulation of public policy. I think that this is at least a questionable assumption.

It seems a fair generalization, therefore, to say that legislators and State Board Commissioners do not view literature as having a serious impact on decision making.

Selection Criteria

After an ERIC search, titles suggested by legislators, education board commissioners, and experts were incorporated into the listing of literature. We next established criteria for selecting works for evaluation. A precise scientific criterion was not followed when it was decided to include studies which could not be classified as research, but contributed to an understanding and analysis of the problem of equalizing educationtional opportunities. Creating criteria for selecting works for evaluation was a vexing problem. Eventually a decision was made to establish the following guidelines:

Literature included for evaluation must have

- an empirical base

  Papers of the "in my experience" tradition without any empirical base were rejected.

- subject matter specific to research objectives

  Literature must deal with the effectiveness, the efficiency, and the equity of programs and practices for equalizing educational opportunities. The categories into which such programs and practices fell concerned:

  admissions requirements;

  barriers to entrance;

  curricula changes, scheduling, counseling, and tutoring;

  creation of a constructive environment for developmental growth;

  creation of opportunities for those not presently in the educational systems or levels, e.g., recurrent education, continuing education, etc.;

  characteristics of target population;

  financial aid;

  pre-college preparation (basic skills and motivation for college).

Literature excluded from evaluation

- directories, manuals, reviews of literature

  This large category of literature was used for insights, comparisons, and measuring consistency of findings, rather than for

> evaluation. In-depth reviews for the purpose of recommednding policy were included.

Fulfilling the objectives of our search required an examination of a vast body of literature covered by political science, economics, sociology, education and psychology. Of the six hundred studies which passed the initial screening 128 works were evaluated (Listed in Appendix C.) in accordance with the evaluation form found in Appendix B. The results of our general evaluation will be presented in the subsequent chapters.

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CHAPTER II

ASSESSMENT OF THE LITERATURE IN GENERAL

General Classification of the Literature Evaluated

In assessing the literature on equalizing educational opportunities for the disadvantaged a major distinction between the form and the content of the literature was applied. This distinction was considered important because internal and external validity pertain to the form of literature rather than to the content. On the other hand, content is critical to policymakers and needed to be clearly identified.

The assessed literature on equalizing educational opportunities for disadvantaged youth fell into four main forms which were categorized as:

- Narrative form - state of the art and position papers.
- Policy Analysis - national task force and commission reports, such as, the Carnegie Commission Reports, reports to the Congress of the United States or to the President.
- Evaluative Research - evaluation reports on compensatory programs or components of programs designed to equalize educational opportunities.
- Basic Research - exploratory, descriptive and analytical studies.

From the point of view of content, two main areas emerged from the literature: the study of variables which affect and are related to students from disadvantaged environments and, the study of programs designed to counteract the impact of these variables. Consequently, three chapters were arranged: 1) to give a brief survey of the literary forms utilized in studying the problem of equalizing educational opportunities (Chapter Two); 2) to evaluate research on specific variables to obtain information on those factors which affect the entrance, persistence, and achievement of students from disadvantaged environments in postsecondary institutions (Chapter Three), and 3) to analyze the evaluative research dealing with the equity, effectiveness and efficiency of programs and components of programs (Chapter Four).

Most studies utilized a combination of forms making it difficult to identify the main category to which a given piece of literature pertained. Likewise, the 128 works analyzed, dealt with several aspects of educating the disadvantaged student and equalizing educational opportunities rather than one specific component. Because many variables and components of programs were studied concurrently, considerable overlapping of form and content resulted.

Results of General Evaluation

Evaluation Instrument

As stated previously one general evaluation instrument (which consisted of four main sections and many subcategories) was designed for the evaluation of the 128 selected works. This permitted flexibility in applying the most appropriate parts of the evaluation instrument where pertinent. The use of the complex instrument, likewise, helped to provide for interreviewer consistency. In this Chapter we will summarize the more important results under the four major parts of our instrument (1) Orientation; (2) Methodology; (3) Findings, Conclusions and Recommendations and, (4) Presentation and Communication. (See Appendix D for tables and a more detailed discussion of results).

Section I. Orientation

Several factors were considered under orientation: problem definition; values assumed or stated; ideological orientation; theoretical or conceptual framework; hypotheses and definitions of major variables.

Problem Definition

By far the majority of the works evaluated were adequate in the specification of the problems under study both as regards clarity of statement and specification of target population. Documentation was in general adequate.

Values

An important element appearing constantly throughout the discussion of evaluative research was that of values. Programs designed to equalize educational opportunities must first affirm the inherent value of postsecondary education; then foster the belief that it is undesirable for an individual to be denied the benefits of postsecondary educational opportunities. This value finally must be translated into an operative decision on the part of the individual to give up an immediate income or job opportunity, and to make education the preferred activity of the next two to four years. One's value system determines both objectives and priorities.

The most widely held value assumption or belief found in the literature, forty-four percent, was that every person has a right to an equal opportunity to receive an education of high quality regardless of his race, color, religion, sex, national origin or social class. It is noteworthy that this specific value coincides with national policy written into the Education Amendments of 1972. The value holding second place in the literature, thirty-eight percent, was that all individuals having the desire and ability to continue their education have a right to equal access to postsecondary education of their choice. Thirty percent of the literature held that postsecondary education is necessary for social mobility and that postsecondary education is necessary to equalize access to the more valued occupations.

Ideology

The network of unproven assumptions or beliefs which affect action is called an ideology. Ideologies are often more influential in determining the direction of a study and its ultimate recommendations than a single value or assumption. The literature we evaluated was most influenced by a liberal ideology, sixty-four percent. Only two of the works chosen for evaluation were classified as radical, one as conservative and one as reactionary. In forty-one studies, thirty-two percent, it was impossible to identify any specific ideological orientation.

Theoretical Approach

A variety of theoretical approaches emerged which were summarized as follows: Thirty-five studies, or twenty-seven percent of the studies began from a non-scientific position--primarily experiential, philosophical or ideological; a socio-psychological approach predominated in forty studies or thirty-one percent of those examined. This was not surprising in studies dealing with learning, motivation and minority-majority relations. The historical, the economic, the structural-functional and the legal approach were less frequently represented.

In seeking to conceptualize possible approaches to studying equality of educational opportunities especially in program evaluation, James Coleman and others stressed and defended the simplicity of theoretical models. We contend that the systems model is one of the more useful models because it helps the researcher to focus on and identify the major components and the interrelationship between inputs, structure, process (or activity) outcomes and goals within a comprehensive plan. None of the studies evaluated adequately exploited the potential of the systems approach for program evaluation.

Section II. Methodology

Three distinct evaluation subsections were constructed to assess the methodology of literature: the first, to evaluate basic research; the second, to assess evaluative research, and the third, to evaluate narrative forms. In every case, however, the objective of the evaluation was to assess the internal and external validity of the literature.

Internal and External Validity in General of the Basic Research

For the purposes of this evaluation, the internal validity of a study was defined as that characteristic which follows when no logical errors are detected in the plan of the research, either in the research design, in its method of data collection, in the analysis of the findings, in the deduction or conclusions, or in the process of formulating recommendations. Thus internal validity referred to the correct and logical form of the methodology, not to its content or its truth. The findings and conclusions will be true when the form is valid and the factual observations are true.

Research derives its internal validity from one source alone, namely, its logical form, while it derives the truth content of its generalizations from two sources, the factual truth of empirical observations and the validity of its logical form. Consequently, the validity of research findings and conclusions are guaranteed only when the potential sources of errors are guarded against, as when logical fallacies are carefully avoided. The internal validity of research is, therefore, vulnerable at every stage of the research process.

Basically, internal validity is a problem of control, without which the experiment is uninterpretable.

Answers to certain questions become critical: did, in fact, the experimental treatments make a difference in this specific experimental instance? Did X, the independent variable, produce the difference or variation observed in Y, the dependent measure, or is it possible that the observed differences could be accounted for by some other uncontrolled extraneous variables? Still another question is: did the design rule out, as far as possible, other hypotheses over and above the one proposed in the research? Donald Campbell (1973) has enunciated the possible sources of threats to internal validity. These sources, if not controlled in the experimental design, may produce effects which confound the effect of the experimental stimulus. Seven of Campbell's (1973) sources of threats to internal validity--history, maturation, instability, mortality, testing, instrumentation and interaction were employed and the following overall results were obtained. History and maturation were definite weaknesses in many of the post-test designs assessed. Instrumentation and selection were common threats to most studies while mortality jeopardized not only longitudinal studies, but also studies which relied on mailed questionnaires for their data. (See Appendix D. for detailed discussion)

Research Designs and External Validity

Research designs must minimize bias and maximize representativeness and generalizability. Findings derived from an experimental circumstance, capable of being generalized to other untested populations, have external validity. Generalizability was a perennial problem of studies conducted with pre-tested groups in unnaturally contrived experimental situations.

The general problem as it is related to analytical designs regarding the disadvantaged is particularly apparent in two somewhat related dimensions: representative sampling which permits valid generalization to a designated population, and ecological representativeness which is the ability to lift a study out of its local geographical context and generalize to other settings. Both of these individual problems were apparent in much of the assessed literature.

Specifically, with regard to the first aspect, intact groups were used in several studies--groups that were selected on the basis of convenience, accessibility, or some other criteria. Even if such groups met a specific operational definition of disadvantaged, such as low income, they could not automatically be regarded as truly representative of an established population.

The second problem, ecological representativeness, arises from the scarcity of general national surveys and the fact that much of the research is concentrated in certain geographical areas, for example, in California and New York. Because no significant amount of the research was randomly distributed, it meant that we know a lot more about some areas than about others. Further, it remains highly questionable whether we could take the findings of one area and assume that they were representative of a previously unresearched area. Could findings, for example, that were presented on the disadvantaged in California be easily transferred to the disadvantaged of Maine? Or, if a particular program demonstrated success in California, would this program operate successfully in any Southern State where the school system itself, as well as related facets, have a high degree of variance from the test State, California?

External validity, then refers to that characteristic of a study, conclusion, or finding, which permits generalization to one entire population or to other groups or populations. External validity, like internal validity, does not refer to the truth or falsity of a study, but to the aspect of generalizability. External validity is directly dependent upon a representative sampling plan and upon the internal validity of a study. Whatever violates good sampling procedures and internal validity also jeopardizes external validity.

The term, external validity, is also used to refer to consistency with other studies in the field. This consistency is a quick measure of external validity. It can usually be assumed that, in most cases, consistency with accepted studies in a field of research assures external validity without further investigation. In practice, consistency is a good rule of external validity, although it is a consequence rather than a cause. In our evaluations, therefore, we checked the selected studies for control of potential sources of invalidity in the sampling procedures, in the statistical analysis, and in their conformity to other studies in the field.

External validity, then, measured by two indicators--generalizability and conformity to other studies in the field hinged mainly on the adequacy of sampling. Sampling procedure, however, provided the single most lamentable aspect of much of the research on equalizing educational opportunities for the disadvantaged.

Sampling

The question of sampling adequacy, as it relates to the literature dealing with equalizing educational opportunities, was unquestionably one of the major areas of discomfort. It has generally been regarded as a scientifically accepted tenet that random procedures of sample selection, based principally on probability theory are an effective means of insuring sample representativeness. By using a random sample, we are not only able to estimate population values but also have the additional advantage of ascertaining the probable estimate of error. Most of the research, eighty percent, did not employ random methods of sample selection, and of those who did use random procedure, only seven percent reported any estimate of probable sampling error.

In lieu of random sampling, twenty-four percent of the evaluated studies resorted to non-probability and "purposive" samples. Intact samples were frequently derived on the basis of researcher convenience, self-selection on the part of sample participants, or some other selective mechanisms. The bias that is inherent in certain alternatives to randomization is self-evident.

Fifty-six percent of the studies failed to indicate the type of sampling employed. Other deficiencies were sample size and disproportionate sampling. The statement of sampling size and fraction were consistently missing. There was considerable disproportionate sampling. Black males in ethnic studies were under-represented, and certain states and regions in ecological surveys were repeatedly absent.

Statistics and Validity of Measurement Instruments

Basic research has frequently been criticized because inappropriate statistical models are used. Consequently, it is not surprising to meet the same problem in evaluative research in the area of equalizing educational opportunities. Some studies--though by no means all--utilized parametric statistics in violation of the required assumptions. Aside from this rather unique problem, most of the statistics implemented could be judged adequate.

In the empirical studies investigated, the validity of instruments used in data collection was more often assumed than objectively assessed or proven. Face validity was most prevalent. This same comment can be made with regard to reliability. There were very few checks on the reliability of measures implemented. Various techniques for determining reliability are available--split-half technique and test-retest--but these were seldom utilized. In fact, they were found so infrequently that it is safe to draw a summary judgment stating that there existed a serious lack of reliability estimation in the research area on equalizing educational opportunities. In sum, measurement was chiefly nominal and ordinal, and reliability and validity were assumed.

Statistical computations consisted chiefly of averages, percentages and correlations. Statistical operations for safeguarding against drawing unjustified conclusions from findings were found in basic research, but seldom in evaluative research on programs. Essentially most of the statistics employed were suitable to the level of measurement attained; were generally consistent with the research design, and could be easily interpreted.

Five questions were asked in regard to statistical procedures in basic research as illustrated in Table 7.

TABLE 7. STATICTICAL PROCEDURES

Questions	Adequate	Inadequate	Questionable
Are the measurement levels required by the statistics attained?	31	17	13
Does the sampling design fit the statistics?	28	22	11
Is the assumption of distribution justified?	11	22	28
Are the statistics used consistent with the research design?	55	5	1
Are the statistical results correctly interpreted?	41	9	11

In sum, although some studies made questionable use of certain statistical models, general statistical problems were greatly overshadowed by other methodological concerns, especially sample inadequacy, which generally outweighed the unique problems apparent in statistical operations.

Methodology of Evaluative Research

Evaluative research focuses primarily on program effectiveness, efficiency and equity. Controlled experiments, the most desirable models in basic research, were frequently not possible to use in evaluation. The most frequently used models were quasi-experiments so constructed that some biases did affect the control groups, or correlational designs in which persons getting some sort of treatment were contrasted with others not treated. In this design, relevant characteristics were controlled statistically.

Peter H. Rossi (1971) and others consider "soft" techniques almost as good as subtle and precise ones, if massive effects are expected or desired (p. 280). If a treatment shows no effects with a soft method, they contend, then it is highly unlikely that a very precise evaluation will show more than very slight effects. Thus, if students in compensatory programs and practices show no gain in learning basic skills and competencies, and are not more highly motivated to persist, compared with those who do not participate (initial learning and motivation held constant), then it is not likely that a controlled experiment with students randomly assigned to experimental and control groups would reflect dramatic differences either. Consequently, it is worthwhile to consider quasi-experimental and correlational designs as the first stage in evaluation research, discarding treatments that show no effects and retaining more effective ones to be tested with more powerful, controlled designs. Although checking for possible correlations after the event may introduce biases, such designs are extremely useful in investigating long-term effects.

In the evaluation of programs, therefore, special attention was directed to goals and criteria for program outcomes: were the criteria for program outcomes adequately specified in measurable terms? In most cases they were not. The priority ordering of objectives according to standards of equity also was judged inadequate. The specification of long-range goals, however, was generally adequate. Nevertheless, this in no way compensated for lack of specification of immediate objectives in measurable terms. On the contrary, the specification of ultimate objectives often posed a logical trap which led many evaluators to seriously blunder--particularly in evaluating federal programs. Measured by ultimate objectives concrete programs could easily be made to look less effective than they were in reality. It must be emphasized that a truer measure of effectiveness is the immediate objective or the immediate goal. Evaluation by ultimate or remote objectives easily leads to negative conclusions, for no specific program can be designed to obtain the ultimate end of equalizing educational opportunities within a short span of time. The most serious threat to the validity of program evaluation was assessment of outcomes by ultimate objectives.

Methodology of Narrative Forms

Scientific standards were less rigorously applied in judging narrative forms. We looked simply for logical construction; adequacy and trustworthiness of sources, and significance of empirical data used. Over seventy percent of the narrative literature was judged adequate for both internal and external validity by these standards.

Section III

Evaluation of Findings, Conclusions and Recommendations

From the 128 works evaluated, 521 findings, 203 conclusions and 260 recommendations were categorized and individually assessed.

Findings

An index of three items--accuracy, precautions against bias, and significance, using a four point ordinal scale of superior, adequate, substandard, and defective was constructed to evaluate the findings. Using this index, fifty-five percent of the selected findings were judged adequate; thirty-five percent substandard and seven percent totally defective, while only three percent was judged superior. On the criterion of positive checks against bias, six percent were rated superior; sixty-three percent adequate; twenty-nine percent substandard, and two percent were rated totally defective. On the criterion of significance, twenty-one percent were considered highly significant; forty-two percent were of medium significance; thirty-three percent were of low significance, and four percent had no significance. Consequently, at least thirty percent of the findings were of little significance, while seventy percent were judged significant in relation to equalizing educational opportunities.

Conclusions

The distinction between a finding and a conclusion is often academic. Nevertheless, for the purposes of our study it was important to isolate an author's own deductions from his empirical findings, because conclusions and interpretations may be at variance with facts. We, therefore, evaluated 203 individual conclusions for their internal and external validity. Seventy-two percent were accepted as valid. A considerable amount, twenty-eight percent were rejected as invalidly drawn, or at least questionably overdrawn. Poor sampling affected the external validity of a great many conclusions. Seventy percent were of questionable external validity and thirty percent acceptable from the aspect of generalizability. The reverse, however, was true on the measure of conformity. The apparent contradiction can be reconciled in that conformity is based on many elements apart from pure data, such as, attitudes and opinions, while generalizability on the other hand is based on the quality and type of data alone. Ideally one would have hoped for a greater correlation between the two measures of external validity.

Recommendations in Evaluative Research

The culmination of evaluative research lies in the recommendations made to policy-makers. In the policy research process, the advocacy of recommendations is appropriate only after the information is presented objectively. The execution of the research must be governed by disciplinary or scientific research values. Research results must be reported objectively and openly according to the canons of scientific research values. However, when the researcher approaches the point of recommendations, he re-enters the complex real world of politics, law, and economics and touches on cultural beliefs, norms, and values. Thus, recommendations imply advocacy based on personal values as well as objective facts.

Effective recommendations must, therefore, take cognizance of the reality limitations imposed by the boundaries of the many systems which specify the range within which a recommendation is feasible. Consequently, recommendations are diffucult to evaluate, for being closer to reality, they are at once more concrete and yet more complex.

A complex index of nineteen items was used to evaluate 260 individual recommendations. We were especially interested in the degree to which recommendations took into account their cost effectiveness, efficiency, equity and feasibility. The results in general were disappointing, revealing a lack of sophistication. Recommendations in government reports, however, appeared to be quite conscious of costs involved as well as limitations imposed by the political boundaries. The major weakness in most evaluations was found to be the absence of any attempt to foresee possible negative effects whether latent or manifest.

Section IV - - Presentation and Communication

Today emphasis on the final stage of evaluative research is placed on communication of results to policy-makers. The manner or format of presenting results is also significant in policy research. Because of the recency of policy and evaluative research we did not expect many researchers to have stressed the manner of presentation, nevertheless for sake of completeness, we examined this aspect.

The presentation format was judged fairly adequate, the audience was kept in mind, and the general pedantic and scholastic jargon was avoided. The art of presentation, however, in the interpretable diagrams, graphs, charts, and language of policy makers has indeed yet to be fully developed by social scientists in their attempt to bridge the gulf between the world of action and the world of scientific thought. Evaluative science itself is in its infancy and it is not surprising that this art of communication leaves much to be desired.

Implications

In this chapter we have been essentially concerned with the internal and external validity of the literature based on an evaluation of the research form and design rather than with the content of the literature on the disadvantaged. At first this may appear too abstract an exercise to have policy implication. However, both the internal and external validity of the literature pertain directly to the form and not to the content. Validity has important policy implications. Conclusions and recommendations devoid of validity are of little use to policy makers and in decision making.

The body of literature divided itself into four main forms: narrative--addresses, speeches, advocacy articles, and the like; special reports of task forces, commissions, and similar study groups; basic research; and evaluative research. Narratives and reports, while not fitting the strict canons of research, are often closer to the world of action and may serve as important vehicles for communicating the findings and conclusions of basic research and evaluative research.

Basic research seeks knowledge for its own sake, while evaluative research seeks to measure the effectiveness, efficiency, and equity of programs for policy purposes and program improvement. In basic research, whether exploratory, descriptive, or analytical, the main objective always remains the clarification of empirical truth for the sake of knowledge.

A major consistency arose from the basic research regarding the critical variables which were either associated with or causal of the plight of the disadvantaged student. The major classes of variables considered in the literature fell into three categories: sociocultural, personality, and locational. These classes of variables will be discussed in Chapter Three.

Methodological Concerns

The most serious methodological weakness encountered in basic research studies consisted of the inadequacy of sampling procedures and the frequent failure to control for intervening variables. As we shall later discuss, the question of random sampling and randomization in the area of evaluative research raises the theoretical question of how suitable and effective is random sampling in the evaluation of individual program effectiveness. Although academic controversy continues on the point, our approach has been that in basic research, random sampling is critical, while in evaluative research its usefulness is sometimes highly questionable. The most important implication arising from our evaluation of the conclusions and recommendations in general was that there is a strong tendency to draw conclusions not warranted by the facts. Recommendations tended to concentrate on the manifest positive outcomes with little attention to the manifest or latent negative outcomes. The failure to consider negative effects poses serious problems for policy makers whose function is to be keenly alert to both the manifest and latent negative outcomes of their policies.

National reports showed some concern with estimating the cost and political implications of recommendations. However, most studies of state and institutional programs neglected this aspect of evaluation studies.

Evaluation of Ultimate Rather than Immediate Goals

A major weakness in the evaluative research studies was found in the evaluation of how well objectives were being met. There was a repeated tendency to evaluate the effectiveness, efficiency, and equity of programs by the criteria of ultimate ends rather than the immediate ends of components or comprehensive programs. Evaluation of ultimate or remote objectives easily leads to negative conclusions, for no specific program can be designed to obtain the ultimate end of equalizing educational opportunities particularly within a short span of time.

Lack of Empirical Data for Immediate Objectives

Because many specific institutional programs and governmental programs were evaluated on ultimate objectives, serious errors arose. We feel that evaluations by most program evaluators followed this approach and fell into this logical trap because empirical data regarding immediate objectives was non-existent. Such has been the fate, as we shall see, of Upward Bound.

In most instances, immediate objectives were not spelled out, much less in measurable terms. The policy implication of this finding is that policy-makers must receive with skepticism any negative evaluation based on ultimate ends, and hold doubly suspect any evaluation which purports to establish that ultimate ends have been achieved.

In this chapter, the internal and external validity of basic and evaluative research have been examined as they pertain to form and methodology. In the following two chapters, we will study the content of the literature attempting to evaluate and synthesize basic research (Chapter Three), and evaluative research (Chapter Four).

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CHAPTER III

ASSESSMENT OF SPECIFIC WORKS

There is a plethora of literature dealing with the three major categories or systems of variables which affect or produce inequalities of postsecondary educational opportunities. This section focuses on the propositions which, we feel, sum up for policy purposes the major findings of research, reports, and other forms of literature.

Variables

The propositions may be divided into three categories of variables: sociocultural, personality, and locational. The sociocultural variables which limit access, achievement, and persistence were identified as follows:

- low socioeconomic status (SES), measured by father's income, occupation, and education (Proposition I);
- lack of parental encouragement, found to be more limiting than low SES (Proposition II);
- Minority status (Proposition III);
- vocational/technical high school curriculum, more limiting than all other sociocultural variables (Proposition IV).

The following personality variables also limit access, achievement, and persistence:

Cognitive variables

- low academic ability, found to be more limiting than low SES, but less than a poor academic self-image (Proposition V);
- poor study habits (Proposition VI);
- poor basic skills (Proposition VII);

Affective variables

- poor academic self-image, more limiting than low SES (Proposition VIII);
- low motivation (Proposition IX);
- female status which limits access and persistence but not achievement (Proposition X).

The limiting effect of location was defined as follows:

- Physical and psychological distance from a postsecondary institution limits equality of opportunity for access (Proposition XI).

These sociocultural, personality, and locational variables interact in a potentiating manner to limit access, achievement, and peristence. Eleven propositions have been formulated from our review of the literature which summarize and synthesize existing scientific knowledge. Each proposition in turn following the order outlined in Figure 5 will be supported by an assessed set of studies.

Propositions: Sociocultural System

Proposition I

LOW SOCIOECONOMIC STATUS LIMITS EQUAL OPPORTUNITY FOR ENTRANCE, ACHIEVEMENT, AND PERSISTENCE IN POSTSECONDARY EDUCATION.

This proposition has universal external validity by its general acceptance in research literature whether the function of the research is descriptive, exploratory, or analytical. On the whole it was accepted by special task forces which analyzed and synthesized secondary data for governmental agencies; it was accepted by study commissions, such as the Carnegie Commission, who made extensive recommendations for higher education; and by most authors of polemical literature which revolved around the consequences and effects of a student's socioeconomic status. No other aspect of the question of equalizing educational opportunity has been given the same attention as

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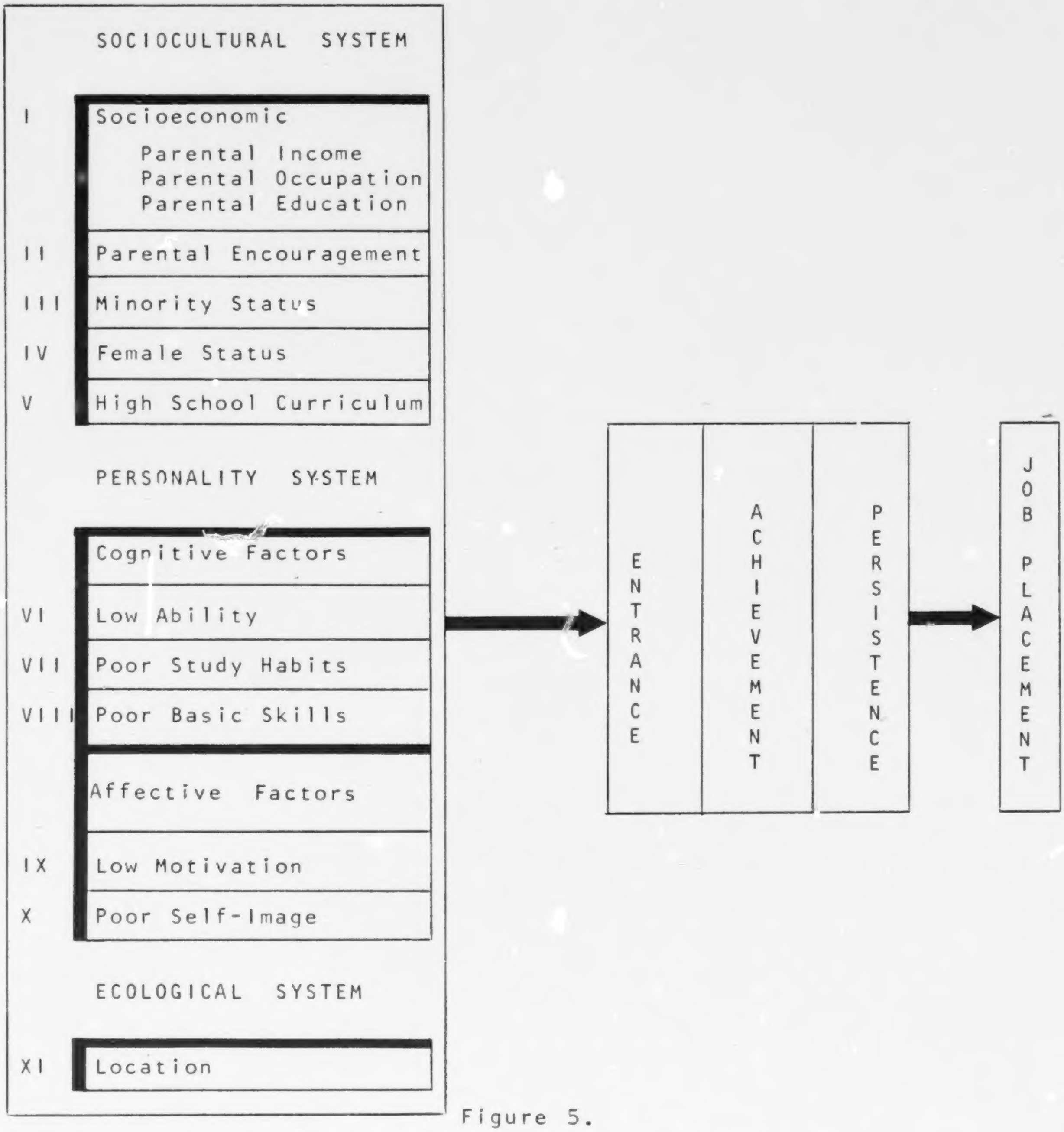
SOCIOCULTURAL SYSTEM
I
Socioeconomic
Parental Income
Parental Occupation
Parental Education
II
Parental Encouragement
III
Minority Status
IV
Female Status
V
High School Curriculum
PERSONALITY SYSTEM
Cognitive Factors
VI
Low Ability
VII
Poor Study Habits
VIII
Poor Basic Skills
Affective Factors
IX
Low Motivation
X
Poor Self-Image
ECOLOGICAL SYSTEM
XI
Location
ENTRANCE
ACHIEVEMENT
PERSISTENCE
JOB PLACEMENT

Figure 5.

SYSTEMS AND VARIABLES AFFECTING
COLLEGE ENTRANCE, ACHIEVEMENT, AND PERSISTENCE

socioeconomic status. An assessment of six specific works which related directly or indirectly to the first proposition follows.

Socioeconomic Status, Intelligence, and the Attainment of Higher Education by Sewell and Shah, (1967)

Reviewing the literature on SES and educational attainment, Sewell and Shah (1967) found that while there were local, statewide, and national studies which had attempted to examine the influences of socioeconomic status and ability on educational aspirations and achievements of students, these studies were deficient because of inadequate sample, failure to take into account those who dropped out, and insufficient follow-up to relate eventual educational attainment to either ability or status. The authors, therefore, designed a longitudinal study based on a 1957 cohort of Wisconsin high school seniors during the seven-year period, 1957-1964. Their study consisted of a questionnaire survey of all high school seniors in Wisconsin public, private, and parochial schools in 1957, and a follow-up study conducted in 1964-1965 of approximately one-third of the students.

The longitudinal study of approximately 9,000 randomly selected Wisconsin high school students who had been successfully followed since they were high school seniors in 1957 provided information on socioeconomic origins, sex, intelligence, college plans, college graduation, and educational attainment. (See Figure 6 for dependent and independent variables.)

Internal Validity

The longitudinal approach offers a unique opportunity to obtain certain types of data. By the same token, it poses a special challenge in design and strategy. Tracing a group of young people, experiencing one of the most mobile stages of life, and persuading them to spend time on the survey questionnaire, are among these challenges. The most sophisticated conceptual models and survey instruments are of little avail if the group responding at any stage is non-representative of the primary sample. The mortality rate for this particular study was fourteen percent. Sewell and Shah indicated that various tabulations comparing known characteristics of the students produced non-significant differences between those from whom responses were obtained and those from whom responses were lacking. The longitudinal design and sampling for this study were adequate. Although affected by some loss, the sampling procedure did not invite a major bias in favor of college students.

Figure 6. INDEPENDENT AND DEPENDENT VARIABLES: SEWELL-SHAH MODEL

Independent Variables	Dependent Variables
Sex (1957)	College Plans (1957) Enrollment at degree granting college, university
Socioeconomic Status (1957) father's occupation father's education mother's education estimate of family contribution income status of family	College Graduation (1964) Student obtained bachelor's degree
Categories: high upper and lower middle low	Educational Attainment (1964) Did not attend college Attended college but did not graduate Attended college and graduated
Intelligence (1957) Herman-Nelson Test of Mental Maturity	
Categories high upper and lower middle low	

Population: All Wisconsin Seniors

Original Sample (1957): 10,321

Follow-up Sample (1964): 9,007

Source: Sewell and Shah (1967). Adapted from study.

The analytical design additionally sought to account for the major intervening variables. (See Figure 7.) The authors also used random sampling to control for other extraneous variables.

Figure 7. VARIABLES AFFECTING POSTSECONDARY BEHAVIOR: SEWELL-SHAH MODEL

Independent Variables	Dependent Variables
Student's high school curriculum	College Entrance
Student's estimate of his brightness, relative to his high school classmates	Type of college entered: four-year two-year
Average of high school grades	Persistence, measured by dropout
College entrant's estimate of his brightness, relative to his college classmates	
Average of college grades	
Socioeconomic status measured by:	
family income	
occupation of head of household	
years of school completed by father	

1965 Census Bureau Survey, National	Sample Size:	90,000
1968 Follow-up Survey,	Sample Size:	1,333

Source: Adapted from the Sewell and Shah (1967) study.

Sewell and Shah used various statistical techniques to analyze data in the longitudinal study: bivariate tables to show the proportions of seniors with college plans, college attendance, and college graduation; multiple cross-tabular analysis to test the association of SES with college plans, college attendance, graduation, and measured intelligence; chi-square to measure statistical significance at the .05 level of probability; path analysis to obtain the relative estimates of the magnitude of the direct and indirect effects of socioeconomic status and measured intelligence on college plans, attendance, and graduation; and finally, multiple cross-tabular analysis, effect parameters, and path coefficients to examine the association of socioeconomic status and measured intelligence with college graduation for those members who attended college.

Essentially internal validity of analytical research refers to the question: do the experimental treatments--sex, socioeconomic status, and measured intelligence--make a difference on the dependent variable, college access, graduation, and attainment? Or is the difference due to uncontrolled, extraneous variables? In a longitudinal study, history, maturation, testing, and mortality pose special difficulties. Sewell and Shah's random sampling adequately accounted for the first three--history, maturation, and testing--and for mortality by a special follow-up effort which reduced mortality in the sample to fourteen percent.

External Validity

External validity asks the question of generalizability: to what populations, settings, treatment variables, and measurement variables can this effect be generalized? While the Wisconsin study controlled for the effects of selection, there remained the possibility that the effects validly demonstrated held only for the unique Wisconsin population. The sample as we have seen was adequate, with a low mortality, which may have created a bias in favor of college students and against non-college students because presumably college students would be more likely to respond to a questionnaire. The study design aimed to control for this sample bias by repeated mailings, lifting the response to 87.2 percent. Nevertheless, the study did not indicate how the fourteen percent non-respondents were distributed. The researchers had information on the three independent variables regarding the non-respondents from the 1957 survey, but no information from this group on the dependent variables. Mortality is a serious threat to all longitudinal studies. The question remained: In what direction did the fourteen percent mortality rate produce bias? Since fewer low SES students go to college, the bias, if any, must have hidden the full negative impact of socioeconomic status.

A final consideration regarding the sample was the absence of disadvantaged high school dropouts. Any study which aims to find the correlation between socioeconomic status, intelligence, and college attendance, but does not include students who dropped out before their senior year, misses an important segment of the high school population and produces findings and conclusions which necessarily underestimate the effect of low socioeconomic status and intelligence on college entrance, persistence, and graduation. Despite this possible conservative low SES bias, it seems fair to say, however, that generalizations from the Sewell and Shah study hold for states similar to Wisconsin, while in poorer states the *a fortiori* argument would be valid in describing effects of SES.

Findings with Policy Implications

The findings of analytical studies on the causes of inequality in postsecondary education have implications for public and institutional policy makers. But rarely will findings from research be directly used for decisions unless results have been analyzed and synthesized and presented with policy makers in mind. We will briefly summarize the findings, and then discuss some of the results to elucidate the complex relationships between socioeconomic background and entrance, persistence, and achievement in postsecondary institutions. Finally, in a subsequent section of this report, we will consider the implications of these specific variables for policy decisions.

Sewell and Shah's conclusions from their longitudinal Wisconsin cohort study are acceptable guides for policy decisions.

> Low socioeconomic status limits access.
>
> From all of this evidence it seems clear that although intelligence plays an important role in determining which students will be selected for higher education, socioeconomic status never ceases to be an important factor in determining who shall be eliminated from the contest for higher education in this cohort of Wisconsin youth. (p. 22)
>
> When intelligence is controlled in multivariate tables, socioeconomic status is positively, monotonically, and significantly related to planning on college, college attendance, and college graduation for both sexes. (p. 22)
>
> Low socioeconomic status limits achievement and persistence.
>
> - Of males in a low socioeconomic status category, 20.5% attended college and 7.5% graduated, while 73.4% of high socioeconomic status males attended and 42.1% graduated. (p. 9)
> - Only 8.5% of low socioeconomic females attended college and 21.7% graduated; 62.6% of high socioeconomic status females attended college and 35% graduated. (p. 9)
>
> Low intellectual ability limits achievement and persistence.
>
> - The association of socioeconomic status with college graduation continues to be positive, monotonic, and statistically significant for both males and females in each of the intelligence categories. (p. 14)
> - Low level intelligence, rather than low level socioeconomic status is the greater limitation in obtaining a college degree in the case of both males and females.

> 10.5% of the males in high socioecomonic status/low intelligence categories graduated from college.
>
> 20.1% of males in low socioeconomic status/high intelligence categories graduated from college.
>
> 7.9% of females in high socioeconomic status/low intelligence categories graduated.
>
> 13.9% of the females in low socioeconomic status/high intelligence categories graduated. (p. 14)

- Although the overall effect of intelligence on college graduation is greater among males (.123) than among females (.083), the magnitude of the effect of socioeconomic status on graduation is almost the same for males and females, .081 and .077, respectively. (p. 14)

- In terms of the relative influence of socioeconomic status and intelligence and college graduation, it seems that the males are somewhat more affected by intelligence than socioeconomic status, but the females are almost equally affected by intelligence and socioeconomic status.

Academic Socio-Economic Factors Related to Entrance and Retention at Two- and Four-Year Colleges in the Late 1960's (Jaffe and Adams, 1970)

In this report, A. J. Jaffe and Walter Adams utilized the 1965 Census Bureau Survey of a national sample of 90,000 high school seniors. Information was available on post-high school plans, as well as personal and background data on each student. The authors correlated eight variables with post-high school behavior, especially the dropout rate, and made policy recommendations based on their findings. The eight independent variables were chosen for an analysis of impact on college entrance, college choice, and college dropout rates based on a 1968 follow-up sample of the 1965 seniors.

Internal Validity

Cross-tabulations were used to examine relationships between the five student academic characteristics and the three family background factors with post-high school behavior. Chi-square was used to test for significance at the .001 level of probability. Control design was adequate. However, questions about internal validity arose in examining the sampling techniques. Jaffe and Adams failed to indicate the sampling fraction or whether mortality affected returns producing bias. Mortality, due to lost cases or cases on which only partial data are available, are often troublesome in longitudinal studies based on earlier data. Jaffe and Adams failed to indicate the loss which occurred in the 1968 returns when compared to the 1965 returns. The Census Bureau had interviewed a national sample of over 90,000 high school seniors. The number of students randomly chosen by Jaffe and Adams from the 1968 follow-up sample for this study appeared to be about 1,333 judging from the totals used in their analysis.

External Validity

As Campbell and Stanley (1963) noted, both internal and external validity are threatened when one allows subjects to self-select themselves to exposure to the treatment effect. To generalize to some larger population of persons motivated to participate in a follow-up survey, obviously assumes that this particular sample of persons is representative of the larger target populations. Jaffe and Adams used random sampling to control extraneous variables along with those chosen for study. Assuming no defect in the 1968 Census Bureau data, the study had external validity.

However, the same weakness detected in the Sewell and Shah (1967) study was evident in the Jaffe and Adams study. That is, by sampling high school seniors, they missed the cohort of dropouts where the impact of SES had already taken effect. Conclusions, from this study would likewise be conservative in relation to the effects of SES.

Findings with Policy Implications

With regard to socioeconomic status and college entrance, the following observations were made:

- The three indicators of SES--income, occupation, and education--are all, singly or in combination, strongly related to college entrance. (p. 11)
- Student's academic self-image has a stronger effect on college entrance than SES. (p. 16)
- The high school curriculum followed has the strongest relationship to college entrance.
- There were differences in college entrance rates between students as a result of the following:

  There was a twenty-seven percent higher rate of entry of students whose family incomes were $7,500 or more, compared with those with a family income less than $7,500

  The rate of entry was thirty-eight percent higher in students with a better academic self-image.

  Students in college preparatory curricula entered college at a rate sixty percent higher than those who followed a non-college preparatory program. (p. 11)

- With the exception of high school curriculum, none of the variables studied yielded statistically signficant relationship to continuation in a two-year college, though the three socioeconomic variables had consistently weak relationship to dropout and continuation (p. 16).
- With the exception of income, all the variables (father's occupation, education, student's self-image, and high school curriculum) were significantly related to continuation at a four-year college.

Factors Related to Persistence

The Jaffe and Adams study was not as concerned with achievement in college as with persistence. They found:

- One-third of the 1965 sample had dropped out of college by Fall 1968.
- There was a strong correlation between the rate of college drop out and the type of college attended (four year/two year) with nearly three times more dropouts at two-year colleges (p. 6).

In addition, the study discovered that parental income had no relationship to the type of college entered, nor did it have statistically significant relationship to retention at either two- or four-year colleges.

- Dropout and continuation are determined by non-financial factors. (p. 12)

However, the relationship between the choice of a high school curriculum and persistence in postsecondary institutions was the most important finding. Of the eight variables Jaffe and studied, the choice of high school curriculum followed had by [illegible]r the strongest relationship to college entrance, the type of college entered, and continuation or dropping out of either a two-year or four-year college.

Human Resources and Higher Education (Folger, et al., 1970)

The Commission on Human Resources and Advanced Education set up a commission with John K. Folger as director to "look at the whole matter of how the United States educates and utilizes young men and women in the upper ranks of the distribution of intellectual ability" (p. xi). After a two-year effort, Human Resources and Higher Education was published. Two chapters are of special interest: one dealing with the flow of students through the educational system and another discussing talent development among low socioeconomic groups (Ch.5 & 10).

The chief data base for the Folger report was Project TALENT (1960), a nationwide study of approximately 100,000 twelfth-grade American youth from 1,300 public, private, and parochial schools. The survey yielded about 2,000 items of information about each student including aptitude and achievement scores; activities, preference, and interest inventories; and extensive personal background information. A follow-up questionnaire to this initial twelfth-grade sample was undertaken in 1965, five years after this group completed high school.

The four-page questionnaire collected comprehensive data to cover the five years since graduation on marital history, employment, and education. Information was gathered on approximately one-third (31,474) of the original subjects who responded to the several waves of mailings of the follow-up questionnaire.

A personal follow-up of a subsample of nonrespondents was made, then weighted to represent the entire group of nonrespondents.

Variables

The authors analyzed thirty-eight personal and environmental variables relative to postsecondary school educational attainment. These variables were obtained from three Project TALENT sources--twelfth grade student test battery, the school questionnaires, and the five-year follow-up survey. Information was missing on one or more of the personal and environmental variables for approximately 4,900 students resulting in a total sample of 15,540 individuals, (8,746 males and 6,794 females), with complete information for analysis. The thirty-eight independent variables were distributed among ten major items: ability, interests, temperament, socioeconomic status, ethnic-religious status, residence, family of orientation (including parents' marital status and sibling) college commitment, and family procreating (age planning marriage, marital status, and parental status).

Internal and External Validity

Missing information and non-response to the five-year follow-up survey reduced the sample size to such proportions as to make it non-representative of the age cohort studied. The authors realized this limitation and urged that the sample not be used to estimate parameters.

The proportion of college students responding contributed to the non-representativeness. College students were overrepresented. Blacks, females, and those of low socioeconomic backgrounds, on the other hand, were underrepresented. This sampling bias resulted in a generally more homogeneous group with respect to personal and environmental characteristics than would be expected from a random sampling of this age cohort in the general population. Background differences, as a result, between educational attainment aggregates were less pronounced. Likewise, correlation coefficients attained between variables were lower than might be obtained with the use of a completely random sample.

Lower correlation coefficients reflected conservative estimates of the impact of the various factors on educational attainment. The non-representativeness of the sample, therefore, limited generalizations and rendered external validity questionable. Nevertheless, the authors felt the data was sufficient for analyzing the interrelationships and the interaction of the personal and environmental characteristics as they combined to influence subsequent educational attainment.

The analytical procedure employed in the analysis was least-squares multiple and partial regression. The criterion variable (educational attainment) was always a dichotomized variable. In some cases the independent (predictor) variables were dichotomized dummy variables and in other cases they were continuous or quasi-continuous variables.

The theoretical foundation for such an analysis was sound, but the biased sample left interpretation of the results open to some qualification.

Findings with Policy Implications

In spite of the obvious sample bias, it was interesting to note that the findings in Human Resources and Higher Education were consistent with other studies on the determinants of college entry and progress. They were consistent with studies showing that academic aptitude and previous school performance were important and with studies finding that sex and socioeconomic background played a significant role. The major findings of this study relative to entrance, SES, and persistence may be summarized as follows:

Entrance

- Roughly half the total variance in college attendance was accounted for by the thirty-eight variables (a multiple correlation of .67 for men and .73 for women), about the same degree of correlation found in several other multivariate studies. (p. 154)

(SES-ABILITY)
- Socioeconomic background variables exerted an independent effect, roughly one-half to three-fourths as great as the influence of academic aptitude, on college attendance, and on college progress. (p. 155)

Socioeconomic status and college attendance

(SES-FEMALES)
- Low socioeconomic status seems to have a particularly adverse effect on the college attendance of girls; at all ability levels, the proportion of high SES girls who attend college was very similar to men, whereas among high-ability-low SES

groups, only fifty-two percent of the girls went to college, compared with sixty-nine percent of the boys. (pp. 309-310)

(SES-ABILITY) . While about ninety percent of the high school graduates in the high ability-high SES quintiles attended college, only about ten percent of those in the low ability-low SES quintiles attended college. More important, when aptitude was held constant, college attendance increased with increasing SES. (p. 310)

Persistence

(SEX) . The rate of college completion in five years for the entire cohort of 1960 high school seniors was twenty-two percent for males and seventeen percent for females. (p. 316)

. If we consider only the students who entered college the first year after high school, forty-five percent of the boys, and forty-nine percent of the girls had graduated from college. (p. 316)

(SES) . Socioeconomic influences affect both the kind of college attended and the probability of completion for those attending colleges of each type. (p. 317)

(SES-MALES) . If the whole group attending college is considered, the boys from high-status backgrounds are almost twice as likely to complete college as boys from low-status backgrounds.

Fifty-five percent college completion for high-status males.

Twenty-nine percent for low-status males. (p. 317)

(SES-FEMALES) . For girls the comparable differences are smaller but still substantial.

Fifty-seven college completion for high-status females.

Forty percent for low-status females. (p. 317)

(SES-ABILITY)

- Part of this difference is due to the different distribution of measured ability among high and low SES youth, but even when ability is controlled, substantial differences attributable to socioeconomic influences remain. (p.317)
- The completion rate of high ability-low SES students was about fifteen percentage points lower than the high-ability-high SES student.
- Furthermore, almost twice as many high ability-high SES students were in graduate schools. The number of high SES girls who entered graduate school was two and one-half times as large as the number of low SES girls. (p. 320)

(SES-COMMUNITY COLLEGES)

- Paradoxically, the community colleges appear to have increased college opportunities for low-status youth, and at the same time, to have increased the socioeconomic differential in college completion. They have tried successfully to get low-income youth into college, but have not increased these students' chances of getting a degree nearly as much. (p.319)

(SES-ABILITY-FOUR-YEAR COLLEGES)

- For those students who enter a four-year college, ability is a much more important determinant of college completion than socioeconomic status, but each exerts an independent influence. (p 319)
- The overall rate of college completion (five years after high school graduation) for all ability groups who entered a degree-granting college or university was fifty-eight percent for boys and sixty-three percent for girls.

(SES-ABILITY-COMPLETION)

- More than three-quarters of the entrants from the high ability-high SES group completed college. Among the high ability-low SES students, on the other hand, less than two-thirds (sixty-two percent for males, sixty-five percent for females) completed college with five years after high school.(p.320)

(SES-SCORES-ENTRANCE)

- Low economic status is an educational handicap, but socioeconomic status is not as highly correlated with college attendence, college graduation,

> or entrance into graduate or professional schools as are the scores students make on tests of intellectual ability or the scores they make in school and college. (p. xxiii)

(SES-GRADUATE ACCESS)

> . While the independent influence of socio-economic factors was relatively small (partial correlation between .10 and .20 at most educational progress points), the effects of SES at the point of graduate entry (partial correlation of .12) was almost as large as the relationship (partial correlation of .13) between SES and initial college entry. (p. 155)

Apart from the five-year follow-up study, Folger, Astin, and Bayer also used a one-year follow-up by Project TALENT an actual sample size of approximately 50,000 of the 1960 graduating seniors and by cross-tabulating sex, ability, and SES, they found results once more similar to other studies.

(SES-FEMALES)

> . Low economic status seems to have a particularly adverse effect on college attendance of girls, at all ability levels, the proportion of high SES girls who attended college was very similar to the proportion of men, whereas among high ability-low SES groups, only fifty-two percent of the girls went to college, compared with sixty-nine percent of the boys. (p. 309)

(SES-HIGH-ABILITY-ACCESS)

> . While about ninety percent of the high school graduates in the high-ability-high SES quintiles attended college, only about ten percent of those in the low ability-low SES quintiles attended college. (p. 310)

(HIGH-ABILITY: LOW-SES)

> . Only about two-thirds of those who were in the upper twenty percent in ability, but who came from disadvantaged backgrounds went to college, for example, as against ninety percent of high ability-high SES youth. (p. 310)

These studies supported the belief that when high school graduation was achieved, motivation, academic ability, and values were well structured and more difficult to modify than at earlier stages of intellectual development. Effective programs are needed for early identification of those personal and environmental variables which motivate and encourage students to invest in postsecondary educational opportunities.

Effects of SES on College Choice

On the choice of college, Folger, Astin, and Bayer found that low SES students tend to distribute themselves equally across the four major types of institutions, while only about ten percent of the high SES high school graduates attended junior colleges. Consequently community and junior colleges enroll a higher proportion of low SES students. This study also demonstrated that students who attend junior colleges are less likely to complete a college degree (pp. 313-314). The authors, therefore, suggested that national programs and national policies are needed to help the open door, low budget, commuter colleges, where high proportions of low SES students enroll, to improve their educational programs and their institutional environment, and to develop programs which are oriented to the special needs of students from lower SES families.

Toward Equal Opportunity for Higher Education (CEEB 1973)

In may 1970, the College Scholarship Service of the College Entrance Examination Board convened a panel of eleven individuals drawn from among the nation's minority populations--Blacks, Chicanos, Puerto Ricans, Native Americans, and Orientals. Their task was to define the higher education needs of all young people from backgrounds of poverty and to develop recommendations for special policies that could lower barriers to undergraduate education. This panel's final report, Toward Equal Opportunity for Higher Education, indicated the direction the nation must go to fulfill its higher education commitment to poor and minority youth. The panel's report stressed lack of money as the chief obstacle to post-secondary education for the financially disadvantaged. The report proposed a new federal program of grants, loans, and special services to provide the dollars necessary to fulfill the national commitment to minority and poor students.

The format and presentation of this report was similar to those of the Carnegie Commission Reports on higher education. Usually selected secondary sources were used to describe the situation and to confirm and support recommendations and proposals. The logical structure of such reports generally follows this pattern:

- Statement of value system:

  The basic values generally have universal acceptance; for example, the equalization of postsecondary educational opportunity is a universally accepted value.

- Empirical facts (usually taken from secondary sources)

  When the situation is contrary to the accepted value system, empirical facts are presented as evidence of the disparity.

- Implications:

  The necessity of remedying the situation is deduced.

- Recommendations:

  The means of remedying, alleviating, or resolving the situation are offered.

Neither the implications nor the recommendations are the fruit of empirical facts only, but flow from a combination of the value system entertained and the empirical facts adduced.

Internal Validity

Two major problems of internal validity face all report writing of this nature. The first deals with authenticity of the source from which the empirical facts were culled; the second deals with the question of selectivity--or the error known as Spencerism--proving by illustration. Reports of necesssity must be selective of the data used. Caution must be exercised, however, not to deduce from the evidence more than the facts permit.

The sources quoted by this report were in general trustworthy--U.S. Bureau of Census, Current Population Reports, U.S. Office of Education Projections, and reputable research scholars. The report pushed one toward the conclusion that the lack of money was the main barrier to higher education.

> The panel's recommendations seek to eliminate the persistent barrier to undergraduate higher education for minority low-income youth--lack of money. This is still the most critical barrier and the most suspectible to remedy through forceful public action at the national level. (p. 50)

This conclusion did not follow from the facts adduced even though the existence of the financial barrier was evident. Research, ignored by this report, would seem to indicate that there are stronger barriers to equalizing educational opportunities than lack of money, for example, lack of motivation, lack of a parental encouragement, poor self-image, high school curriculum followed and foremost lack of basic academic skills.

Variables

In considering two dimensions of equality--access and choice--the panel presented its study around a number of variables. SES as measured by family income, sex, age, ability, minority status, Federal Programs(EOG, NDSL), institutional grants, and parents' contribution were used as independent variables; whereas, enrollment, type of college, timing of enrollment, aspiration level, dropout rate, college retention, and college graduation were dependent variables.

Findings with Policy Implications

The disparaties in opportunity by income level were highlighted by cross-tabulating income and college attendance. In 1970 a youth 18- to 24-years old, from a family earning about $15,000, was nearly five times more likely to be enrolled in college than a youth of the same age from a family with an income of less than $3,000. Table 8 demonstrates college attendance by family income more clearly.

TABLE 8. DEPENDENT 18- TO 24-YEAR-OLDS ATTENDING COLLEGE, BY FAMILY INCOME: 1970 (PERCENTAGES)

Family Income	Percent of Age Group in College
$ 0- 2,999	13%
3,000- 4,999	19
5,000- 7,499	31
7,500- 9,999	37
10,000- 14,999	45
15,000- and over	61

Source: Calculated from U. S. Bureau of Census, Current Population Reports, Series P-20, No. 222, p. 35. (CEEB, p. 11, Table 2)

The panel used the U.S. Office of Education estimates for enrollments of full-time undergraduates in colleges and universities. During the academic year, 1971-72, approximately five million students would be enrolled. in cross-tabulating the estimated full-time enrollment in higher education of all high school graduates by family income quarters, Table 9 was generated.

TABLE 9. ESTIMATED FULL-TIME ENROLLMENT IN HIGHER EDUCATION OF ALL HIGH SCHOOL GRADUATES, BY FAMILY INCOME QUARTERS: 1971-72

Income Quarters of Families with High School Graduates	Number Full-time Students (thousands)	Percent
Bottom ($ 0- 5,706	749	15%
Second (5,707- 9,622	875	17
Third (9,623-14,999)	1,391	28
Top (more than 15,000)	2,022	40

Source: Working paper prepared for panel by R. Hartman and J. O'Neill using U. S. Office of Education Projections. (p. 11, Table 3)

The distribution of these students according to quarters of family income, once again demonstrated the persistent differences in the enrollment rates of low- and high-income students. In 1972, students from families with incomes in the top quarter had almost three times the chance of full-time college enrollment as students in the bottom quarter. The authors stated that this projection actually tended to understate the inequality because the pool of college-age youth is larger in the bottom quarter than in the top. The panel also presented data to show that even in the top ability quarter there was inequality of opportunity due to socioeconomic background. Table 10 illustrates enrollment rates varying widely for students from differing income groups.

TABLE 10. ENROLLMENT AT SENIOR AND JUNIOR COLLEGES OF 1968 HIGH SCHOOL GRADUATES, BY SOCIOECONOMIC STATUS AND ABILITY (PERCENTAGE)

Ability Quarter	Socioeconomic Quarter							
	Male				Female			
	Bottom	2	3	Top	Bottom	2	3	Top
Bottom	14%	18%	33%	40%	17%	16%	29%	55%
Second	29	45	47	62	25	29	49	66
Third	48	57	61	70	41	51	66	77
Top	75	70	86	88	67	71	79	88

Source: Lila Norris and Martin R. Katz (1970) pp. 16-17 Table 4.

The panel also used data from John K. Folger, et al. Human Resources and Higher Education (1970), and Joseph Froomkin's Aspirations, Enrollments, and Resources (1970) to support their assumption that once enrolled in college, students from families in the bottom quarter of income have less than one-third the chance of students from families in the top quarter of completing an undergraduate degree. The relationship of college retention to income quarter is summarized in Table 11. Ability affected completion but socioeconomic status also had a significant effect

TABLE 11. SELECTED RATIOS INDICATING DIFFERENTIALS IN COLLEGE RETENTION, BY INCOME QUARTER

Income Quarter	Persistence in college
Bottom	.29
Second	.56
Third	.71
Top	1.00

Source: Joseph Froomkin, Aspirations, Enrollments, and Resources. Washington, D. C.: U. S. Department of Health, Education and Welfare, 1970, p. 90. (CEEB p. 14, Table 6)

Folger, et al. reported that more than three-fourths of college entrants came from the high ability, high socio-economic group. Table 12 shows that low-income youth graduated from college at a rate ten to fifteen percent lower than high-income youth at the same ability levels.

Evaluation of Panel Report

As stated previously, we do not argue with the data of the report as collected from various research sources, but the conclusion, that lack of money is the most critical barrier, does not follow from these facts. Research indicates that other barriers, and indeed, more important barriers than lack of finances. The "high risk" student who lacks

TABLE 12. EFFECTS OF SOCIOECONOMIC STATUS ON COLLEGE GRADUATION, BY ABILITY LEVELS AND SEX (PERCENTAGES)

	Intelligence Level							
	Male				Female			
Socioeconomic status and sex	Middle	High Middle	High	Total	Middle	High Middle	High	Total
Low	30	*	57	29	*	*	*	40
Low Middle	40	35	47	30	27	48	62	37
Middle	35	46	60	40	36	41	57	43
High Middle	39	55	63	50	40	38	59	45
High	48	51	70	55	44	55	78	57

*Too few cases to provide reliable percentages.

Source: John K. Folger, Helen S. Astin, and Alan E. Bayer, Human Resources and Higher Education. N. Y.: Russell Sage Foundation, 1970, p. 318 (Table 7)

basic academic skills as well as finances faces the greatest barriers. The complex factors which make a student disadvantaged would suggest that money is not the panacea for all the ills dealing with equalizing educational opportunities for poor and minority students. George Nash (1969) likewise, contradicts this conclusion in his report in the fourth edition of the Encyclopedia of Educational Research. After reviewing some twenty items of research covering about the same number of years, Nash concluded:

> The relationship between finances and college attendance is a complex one. Although money emerges as an important factor, it has come to be generally accepted that grant aid alone, offered at the end of the senior year of high school, will have relatively little effect on increasing the number and proportion of students who will attend college.

Jencks and Riseman (1968, p. 21) came to a similar conclusion in their recent, extensive study of the problem:

> All in all, then we are inclined to be skeptical about theories that emphasize the high cost of attending college as the major obstacle, and to look for other explanations of the obvious relationship between class background and attainment.

Moreover, there are a number of empirical studies, Kimball (1968), for example, which show that lack of money is not the most critical barrier limiting lower class enrollment. Other studies show that availability of more financial aid is not going to increase enrollment of low SES groups very much, though of course, it will have some impact. Moreover, as more and more funds are made available to low-income populations, lack of motivation, lack of basic academic skills and ability, rather than finances are likely to be the greatest hindrance to enrollment and attainment.

Nevertheless, the report Toward Equal Opportunity for Higher Education persuasively established the point that the lack of adequate finances is still a serious barrier to the entrance of poor and minority students to higher education.

Higher Education in An Active Society: A Policy Study (Etzioni and Milner, 1970)

Amitai Etzioni and Murray Milner's report, Higher Education in An Active Society: A Policy Study (1970), was submitted to the Bureau of Social Research, Inc., Washington, D. C., Office of Education. Chapter Two of the report dealt with the effects of SES on initial enrollment, progress in college, type and status of college attended, attrition, occupational status and income; college major and career choice; and graduate education.

The report presented re-analysis of previously collected information. The main sources for this secondary analysis included: U. S. Bureau of Census; Sewell and Shah Wisconsin studies; the Folger, Astin, and Bayer study (itself an analysis of Project TALENT): and Jaffe and Adams' National Norms of Entering College Freshmen--Fall 1968; and the statistics and reports of the U. S. Office of Education.

The exploratory nature of Etzioni and Milner's study rendered many of their conclusions quite tentative. The authors' comment on the data they used for re-analysis is of interest:

> The majority of it is quantitative though some are qualitative in the extreme. Because the data have been drawn from a large number of sources, their precision and reliability vary considerably. (p. 1)

This observation on reliability of data may be applied to all reports using secondary analysis. In fact, many of the studies published within the last few years re-analyzed the same sources. Likewise, the tables were often repeated to illustrate and support positions held. Consequently, consistency (external validity) was present to a high degree.

Findings with Policy Implications

There is no question that SES affects one's chances of attending college; the question is how great is the inequality between the upper SES and the lower SES groups. Etzioni and Milner demonstrated:

- that families from the top income groups are nearly four times as likely to have dependents enrolled in college as those from the lowest income groups. (I, p. 15)
- that lower income groups tend to be underrepresented among college freshmen and upper income groups overrepresented, though among the general population the $10,000-14,999 category is slightly larger. (I, p. 14)
- that educational level of the family one grows up in is at least as important as their income level, since family income and educational level are as a rule not perfectly correlated. (I, p. 16)

Table 13 shows that as the years of parental education increase, so too the percentage of their children in college increased at all levels. Children from lower SES families dropped out of high school at significantly higher rates than middle and upper class children. Studies of those who enrolled in college were, therefore, conservative. Unfortunately data on students who dropped out of high school before graduation were not available.

TABLE 13. WHITE DEPENDENT FAMILY MEMBERS 34-YEARS OLD OR YOUNGER WHO ARE HIGH SCHOOL GRADUATES, WHO ARE NOW OR WHO HAVE BEEN ENROLLED IN COLLEGE, BY LEVEL OF EDUCATION OF THE HEAD OF THE PRIMARY FAMILY: March 1968

Educational Level of Head of Family	Percent Who Have Been or Are Now Enrolled in College	
	Years	Percent
Grade School		
	1 - 4	37.8%
	5 - 7	30.5
	8 -	43.2
High School		
	1 - 3	47.1
	4 -	65.3
College		
	1 - 3	82.9
	4 -	88.9
Total: all levels		61.9

Source: U.S. Bureau of the Census, 1969

Effects of SES on completing the last year of high school and entering college were greater on lower than higher SES groups. Table 14 shows the effects of SES on both completing the last year of high school and entering college. Lower SES groups had higher attrition rates at both points--and possibly even more so at earlier stages of high school--producing a significant sum cumulative effect.

TABLE 14. ATTRITION OF HIGH SCHOOL SENIORS: PERCENTAGES OF THOSE STARTING THEIR SENIOR YEAR IN HIGH SCHOOL WHO GRADUATED AND ENTERED COLLEGE AS COMPARED WITH THOSE GRADUATING FROM HIGH SCHOOL WHO ENTERED COLLEGE, BY FATHER'S LEVEL OF EDUCATION, OCCUPATION, FAMILY INCOME: SENIORS OF 1965

Variables	All Seniors		% Seniors who entered college	% Seniors who graduated	% Seniors who entered college
	N	%			
Father's Level of Educ.					
College: 4 yrs.- +	296	100.0	77.7	92.2	62.4
1 yr. - 3	306	100.0	60.0	96.5	62.5
High School: 4 yrs.	746	100.0	51.5	96.0	53.6
Elementary 8 - 3 yrs. high school	862	100.0	33.2	94.9	35.0
Less than 8 yrs.	291	100.0	18.9	85.4	22.2
Not reported	331	100.0	25.7	77.0	33.3
Father's Occupation					
White collar	1,029	100.0	60.4	94.3	64.1
Manual or service	1,371	100.0	33.6	91.0	36.9
Farm worker	162	100.0	34.0	94.2	36.1
Unemployed or not in labor force	237	100.0	27.8	88.7	31.2
Not reported	34	100.0	--	*	*
Family Income					
$15,000 - over	169	100.0	82.2	94.7	86.7
10,000 - 14,999	508	100.0	57.5	93.7	61.3
7,500 - 9,999	521	100.0	48.0	94.1	51.0
6,000 - 7,499	393	100.0	38.4	93.3	41.1
4,000 - 5,999	524	100.0	34.4	93.1	36.9
3,000 - 3,999	192	100.0	28.1	87.0	32.2
Less than 3,000	309	100.0	17.2	86.8	19.8
Not reported	218	100.0	18.6	90.2	54.1
Total	2,833	100.0	43.2	92.2	46.9

*Base less than 100,000.

Source: U. S. Bureau of the Census, 1969

In summary, even when ability and sex were controlled SES still had a significant influence on one's chances of attending college. SES can be said to have a definite impact on an individual's chances of attending college whether SES is measured in terms of income, occupation, or education. The relationship held even when ability and a wide variety of other factors were controlled. The effect of SES was less for those of high ability and for males. Even for men in the top ability quartile, however, the data available showed that a thirty percent differential in the college attendance rates of high school graduates from the bottom and top SES quartile.

Persistence

After the initial barrier to college enrollment, did SES continue to affect academic achievement and persistence in college? Etzioni and Milner provided supporting data to show that while the effects of SES were less than at the time of initial enrollment, they still played a definite role. The authors presented two tables: one based on Project TALENT cohorts, (this same table was used by the panel report Toward Equal Opportunity for Higher Education and appeared in that study)and the other on the Sewell and Shah Wisconsin study cohorts. Percentages of enrollees who actually graduated, controlled by sex, SES, and ability, were presented. (See Table 15.) SES continued to influence the educational attainment though its effects were weaker

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TABLE 15. PERCENTAGE* OF WISCONSIN COHORT WHO HAD GRADUATED FROM COLLEGE EIGHT YEARS AFTER HIGH SCHOOL GRADUATION, BY SOCIOECONOMIC STATUS, INTELLIGENCE, SEPARATELY FOR MALES AND FEMALES.

Socioeconomic Status Level	Intelligence Levels								Total	
	Low		Lower Mid		Upper Mid		High			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
	Males									
Low	23	4.4	44	** 47.7	54	38.9	78	** 38.5	199	** 36.7
Lower Middle	35	20.0	88	27.3	117	39.3	149	58,4	389	42.2
Upper Middle	50	24.0	95	28.4	162	47.5	208	64.9	515	48.7
High	52	26.9	141	38.3	219	52.5	401	70.6	813	57.3
Total	160	21.3	368	34.2	552	46.9	836	64.0	1916	49.8
	Females									
Low	15	6.7	20	20.0	21	** 28.6	38	** 50.0	94	** 31.9
Lower Middle	31	9.7	69	26.1	70	37.1	83	56.6	253	37.2
Upper Middle	40	15.0	83	36.1	103	38.8	139	51.8	363	40.5
High	42	23.8	99	34.3	217	54.4	350	66.9	708	55.9
Total	128	15.6	271	46.2	411	61.0	610	47.0	1420	47.0

*Percentage based on number who attended college, not total cohort of 1957 high school graduates.

**x^2 significant beyond 0.05 level for this column.

Effect parameters:	Males	Socioeconomic status:	.049
	Females	Socioeconomic status:	.061
	Males	Intelligence:	.131
	Females	Intelligence:	.142

Source: Sewell and Shah (1967) Sociology of Education,40,1. p.21.

after entrance than at the time of initial enrollment. Even when ability was controlled, graduation rates ran from twenty to sixty percent higher for those from the top SES than for those from the lower categories. When considered in terms of causation, or "variance accounted for," "the effects of SES," the authors state, were quite significant "compared to any other factor which has been measured up to this time. SES, however, still explains very little of the total variance" (I, p. 53). Their major conclusion regarding the effects of SES was that "simply reducing the inequality of opportunity at the point of entry into college--or even throughout the undergraduate career--cannot be expected to equalize fully the life chances of those from different socio-economic backgrounds" (I, p. 53).

The panel report, Toward Equal Opportunity for Higher Education, stressed that inequalities cannot be removed or even significantly reduced unless more dollars are committed and furnished for scholarships, loans, grants, etc. Etzioni and Milner and others emphasized that numerous factors intervened between the relationship of low SES and low college attendance and completion. In sum, there was unanimity on the negative impact of SES on equalizing educational opportunities for the disadvantaged.

Educational Mobility and Access: Growth and Paradoxes (Spady, 1967)

William S. Spady's study, Educational Mobility and Access: Growth and Paradoxes (1967) focused on three major questions:

> Has completing high school and college improved for children with poorly educated fathers, as much as it has for children of college graduates?
>
> Have the rates of college attendance and graduation improved for all social backgrounds?
>
> Has the completion of high school and college improved as much for non-whites as for whites with similar backgrounds?

The data the author used in his analysis of these questions were derived from the Current Population Reports of the U.S. Bureau of Census (Ser, P. 20, No. 132, September, 1964). These were acceptable sources of data for Spady's descriptive design. Simple cross-tabulations of variables were made and percentages were used for their analysis. Likewise, partial Gammas between father's and son's education were computed. Because the rows and columns of the large contingency tables represented ordered categories, the Gamma was an appropriate statistic.

Father's educational background was broken into four categories: less than eight years, eight through eleven years, high school graduation, and one or more years of college. This division served as a rough index of family socioeconomic status. Ages of respondents were also classified into four categories. 25-34 years; 35-44; 45-54; and 55-64. Spady's cross-tabular design was adequate for the internal validity of his conclusions, as discussed below, although the design raises questions regarding its external validity.

External Validity

Spady's data did not provide controls for either region, urbanization, or intelligence of the respondent. It is likely, therefore, that the patterns he had examined would vary as he introduced additional explanatory variables. Spady realized this limitation. He referred to Mary Jean Bowman's study, "Human Inequalities and Southern Underdevelopment," Southern Economic Journal, XXXII, No. 1 (July, 1965) Part II, 73-102, which suggested that a large part of the depressed attainments of low-status sons, both Negro and white, can be traced to their Southern and/or rural origins. As migration removed many of the better educated and able from the farm to the city and from the South to the North, restricted educational attainments tended to center upon those who remained.

Spady's data does not allow generalizations to regions, states, or intelligence. It did, however, present an adequate overall picture of the 1960's and provided a basis for similar comparative studies. The marked expansion of community college facilities and subsidized education after 1965--whether it be through low-tuition state schools or scholarships and loans to individual students--has allowed blacks to increase their levels of education at a rate considerable faster than that of whites. It would be interesting to add a category to Spady's to cover the period after the Higher Education Act of 1965.

Variables

The dependent variable in Spady's report was the highest level of education obtained by the respondent. The independent variables affecting the dependent variable were the respondent's age, race, and father's educational background.

Findings with Policy Implications

The literature has suggested a strong correlation between parental education and college plans, attendance, and persistence. Spady's findings were consistent and reliable for the mid-nineteen sixties. He found that the proportion of sons with more education than their fathers had increased from about half of the 55-64 age group to two-thirds of the 25-34-year olds--a dramatic development.

However, to the question: had the completion of high school or college improved equally for children from all social strata? The answer was no! By using the father's education as a measure of son's status of origin, Spady found that it had not improved equally for children from all strata. However, research revealed that for each age cohort, a son's chances of completing any given level of schooling were also associated positively with his father's education.

There was persistent and marked disparity in educational opportunities. Because for most status categories the rate of completion improved consistently across age cohorts, one could estimate how much this educational attainment gap between children from the top and bottom strata of our society increased or decreased over the years. A contingency table revealed that more than half of the youngest men in the low social group lacked a high school diploma. For college attendance, by contrast, the gap widened. Although the proportion of sons from the top stratum who reached college increased over thirty percent between the twenties and the fifties, the corresponding percentage among sons from low-status homes rose less than six points. The gap in college graduation also widened from twenty-two to forty-five percent. The proportion of sons from low status homes who finished college had risen imperceptibly while that for sons of college alumni doubled in a period of forty years.

Focusing on the question of whether non-white sons go as far in school as white sons when their father's education was taken into account, Spady found that both race and social status influence educational attainment in all four age cohorts. Because being white and having a better educated father are both advantages in reaching all levels of school, it followed that the sons of white, better educated fathers had the highest attainment rates. In addition, attainment increased over time, except of non-whites with poorly educated fathers. Table 16.considered the percentage of sons obtaining a given level of education by age, race, and father's education. It revealed that in an era when high school graduation was almost taken for granted and a bachelor's degree was by no means an exceptional achievement, less than three-fourths of all low-status blacks reached high school, less than a quarter finished, only six percent entered college, and a mere one percent completed the work necessary

TABLE 16. PERCENTAGE OF SONS OBTAINING A GIVEN LEVEL OF EDUCATION BY AGE, RACE, AND FATHER'S OCCUPATION

Son's Age	Father's Education			
	Less than Eight Years		Some High School or More	
	Non-white	White	Non-white	White
	Reaching High School			
25 - 34	71.6	85.2	89.9	96.5
25 - 44	60.7	82.0	72.0	95.9
45 - 54	42.3	74.8	71.3	93.9
55 - 64	31.2	65.0	61.0	88.1
	Graduating from High School			
25 - 34	24.2	48.8	58.2	78.0
35 - 44	25.1	44.2	46.7	70.1
45 - 54	18.1	34.4	28.2	58.9
55 - 64	6.2	21.9	14.0	45.0
	With Some College			
25 - 34	6.0	15.7	25.6	41.0
35 - 44	10.1	15.3	17.8	35.3
45 - 54	4.7	12.0	17.9	28.7
55 - 64	2.1	9.5	4.0	22.8
	Graduating from College			
25 - 34	1.0	7.7	11.5	25.3
35 - 44	4.0	7.4	8.9	21.7
45 - 54	1.9	5.9	5.2	14.6
55 - 64	1.1	6.2	3.0	12.8

Source: Spady (1967) p. 282 (Adapted)

for their degrees. This college completion rate was one twenty-fifth that of their white cohorts with better educated fathers.

Although these data clearly reflected the social and educational deprivation which blacks and other racial minorities had endured during the past generations, social status had come to be more important determinant of educational achievement than race.

The 1964 data used in Spady's report could be fruitfully updated. Indeed, Etzioni and Milner using 1969 U. S. Bureau of the Census data found that "for the younger age groups, very significant gains have been made reducing the degree of educational inequality between blacks and whites at the pre-college level, and that this process seems now to be underway in the higher education system" (I, p. 100). Consequently what we need to know is the degree of success recent attempts have realized in getting non-whites and other low SES groups into and through college.

SES: Summary

The internal validity of research dealing with low socioeconomic status (SES) in our evaluation was adequate and generally acceptable. Clearly descriptive studies which have only established an association of differential socioeconomic status and differential postsecondary educational opportunity for entrance, achievement, and persistence do not prove causal connection, as it is implied in our initial proposition. Nevertheless, studies using analysis of variance and multiple regression analysis (Sewell and Shah, 1967; Jaffe and Adams, 1970; Folger, Astin, and Bayer, 1970) have demonstrated that SES has some causal impact on entrance, achievement, and persistence. The analytical works of these authors confirmed that the impact of SES, although not so great as many had assumed, is significant and cannot be ignored in any attempt to equalize educational opportunity by policy-makers in government, or by policy-makers in educational institutions. Financial aid programs for postsecondary students are in effect an indication that policy-makers have been influenced by the differential impact of socioeconomic status on equal educational opportunities.

A complex variable such as socioeconomic status is not easy to operationalize but most researchers used as their measure of SES, either singly or in combination, parental income, occupation, and education. The literature showed enormous differences in educational opportunities among the various socioeconomic groups and between the sexes. These differences existed regardless of the definition of equality of opportunity employed-- whether it was equality of college access, college persistence, college achievement, or simply continuation in any kind of formal education beyond high school.

Proposition II

LOW PARENTAL ENCOURAGEMENT LIMITS EQUALITY OF OPPORTUNITY MORE THAN SES FOR ENTRANCE, ACHIEVEMENT, AND PRESISTENCE.

Literature shows that parental encouragement is one of the powerful intervening variables associated with college entrance, persistence, and achievement. One of the most sophisticated studies in this area is "Social Class, Parental Encouragement, and Educational Aspirations," by William H. Sewell and Vimal P. Shah (1968). The principal purpose of their report was to examine the relationship between socioeconomic status, parental encouragement and college plans. The strategy followed was to partial out the influence of intelligence and parental encouragement prior to determining the relationship between socioeconomic status and college plans. Separate analysis was made for males and females because of known differences in their propensity to pursue higher education, as well as likely differences in the influence of socioeconomic status, intelligence, and parental encouragement on their college plans.

Variables

Sewell and Shah used three independent variables: socioeconomic status, intelligence, and parental encouragement; their dependent variable was college plans. The variable of central concern to us, parental encouragement, was identified in the students' responses to four statements intended to record their perception of their parents' attitudes toward the students' college plans. The students were asked to check any one of the following four statements:

- My parents want me to go to college.
- My parents do not want me to go.
- My parents do not care whether I go.
- My parents will not let me go.

For the purpose of their study, the authors considered the students responding to the first statement to have positive parental encouragement to attend college, while the students responding to the other three statements were considered not to have perceived positive parental encouragement to attend college. The variable was dichotomized accordingly into high-low parental encouragement categories. Sewell and Shah for their analysis used data from a survey of the 1957 Wisconsin graduating seniors from all Wisconsin public, private, and parochial schools. They used a sampling fraction of one-third of these students, randomly chosen, constituting a sample size of 10,318. Findings and conclusions, therefore, could be validly generalized to the Wisconsin population of graduating seniors, and probably to seniors in states of similar social and cultural backgrounds.

Internal and External Validity

Various statistical techniques were used to achieve the purposes of the study. The gross relationship of socioeconomic status, intelligence, and parental encouragement to college plans and to one another were determined from their zero-order correlation coefficients. The relationship of socioeconomic status to college plans, controlling for intelligence and parental encouragement, was determined by means of first-and-second-order partial correlation coefficients. The additional contribution of parental encouragement in predicting college plans, over and above the contribution of socioeconomic status and intelligence, was determined by means of stepwise multiple correlation coefficients. The relative direct and indirect effects of socioeconomic status, intelligence, and parental encouragement on college plans were determined by using the method of path analysis. A multivariate cross-tabular analysis of the data was made to demarcate the differential influence of socioeconomic status on the college plans of various subgroups which differ by sex, intelligence, and degree of parental encouragement. The statistical significance of the relationships examined throughout the analysis was determined by appropriate tests using the .05 probability level.

Although some may prefer to have an explanation for the sequence followed in the authors' stepwise regression analysis, we found the particular sequence used satisfactory for the purpose of the study. The interpretability of the results based on the correlational design was highly satisfactory. The analysis of correlations between variables did not appear to encounter interaction effects threatening internal validity. Sewell and Shah's study was, therefore, judged to have internal validity both for its sampling procedures, its quasi-experimental design, and for its statistical techniques of analysis.

External Validity

The conclusions in this study were in agreement with and substantiated other investigators' findings using less rigorous methods and less representative samples. These data could validly be generalized to other populations, similar settings, and measurement variables. This study, therefore, was internally and externally valid with respect to its propositions.

Sewell and Shah's Major Findings

- The zero-order correlation coefficients indicate that the relationship of parental encouragement to college plans is stronger than of either socioeconomic status or intelligence to college plans and that the relationship of parental encouragement to college plans is stronger for females than for males.

- For males, socioeconomic status and intelligence, each explains about eighteen percent of the variance in college plans.

- For females, socioeconomic status explains about 22.9% of the variance in college plans while intelligence explains only 12.6%.

- Parental encouragement explains about one-fourth of the variance in college plans of boys and about one-third of the variance in college plans for girls. (p.563)

- For both males and females socioeconomic status indicates a stronger relation with parental encouragement than does intelligence. (p. 564)

- Socioeconomic status, intelligence, and parental encouragement together explain 36.8% of the variance in college plans for males and 40.7% for females.

- The direct effect of parental encouragement on the college plans of boys and girls is greater than that of either socioeconomic status or intelligence. (p. 568)

- Where parental encouragement is low, relatively few students, regardless of their intelligence or socioeconomic status levels, plan on college (even highly intelligent students with high social class origins who are not encouraged by their parents are not likely to plan on college). (p. 571)

- Where parental encouragement is high, the proportion of students planning on college is also high, even when socioeconomic status and intelligence levels are relatively low. Thus it may be concluded that while social class differences cannot be entirely explained by differences in parental encouragement (or intelligence) among the various socioeconomic classes, parental encouragement makes an independent contribution to social class differences in college plans of both males and females. (p. 571)

Policy Relevance

Sewell carefully noted the impact of these findings on policy. He stated:

> Because parental encouragement is a social-psychological variable, it is presumably subject to modification by means of programs of counseling directed at parents or parents and children, whereas the child's intelligence and family socioeconomic status are likely to be more difficult to influence at this point in the child's development. (p. 571)

In the light of this discussion, we can say that socioeconomic status, ability, and parental encouragement have substantial independent relationships to college entrance, persistence, and achievement. Additional sociocultural variables affecting postsecondary education are: minority status and choice of high school curriculum.

Proposition III

MINORITY STATUS IN GENERAL LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE.

An extensive body of literature deals with minority access to postsecondary education. Most of this writing is polemical and falls within the "My experience" tradition. The only minority population for which substantial, although often conflicting, data exist concerning access, persistence and achievement in postsecondary institutions are Afro-Americans. Quality studies on low socioeconomic status Puerto Ricans, Mexican Americans, and American Indians are lacking. In 1967 and 1968, the Civil Rights Office of the Department of Health, Education and Welfare required colleges to file estimates of enrollments classified by ethnic group, as evidence of compliance with the Civil Rights Act of 1964. The department's later dropping of this requirement did the research community a disservice. Undoubtedly, there were many political considerations in this decision, but certainly the research community would have been better served by a decision to improve data collection rather than abandon the project. The paucity of consistent data relating to the education of minority groups hampers documentation. Fred Crossland, Minority Access to College (1971), reported a "famine of hard, realistic analysis" (p. vii). As late as 1973, the panel report, "Toward Equal Opportunity for Higher Education," stated that a full statistical profile of minority groups in higher education cannot be assembled from available sources (p. 27). The following individual studies were assembled for evaluation in relation to entrance, achievement, and persistence of minorities:

- Minority Access to College, by Fred Crossland (1971)
- The Effects of Negro Density on Student Variables and the Post-High School Adjustments of Male Negroes, by David E. Kapel (1968).

- The Negro Student at Integrated Colleges, by Kenneth B. Clark and Lawrence Plotkin (1965).
- Black and White Freshmen Entering Four-Year Colleges, by Alan E. Boyer and Robert F. Boruch (1969).
- On Graduate School Programs for Minority Disadvantaged Students, by I. Bruce Hamilton (1973).

Minority Access to College, by Fred E. Crossland (1970).

Fred E. Crossland believed that for underprivileged and disadvantaged minorities the question of accessibility to and success in collegiate-level opportunity is more than the opportunity of obtaining a "union card" or "passport" to full entry into American life. For such groups it is more fundamentally the acquisition of that competence that higher learning is supposed to, and presumably designed to, produce and develop. Crossland believed the "acid test is one's ability to function competently in a society where achievement, effectiveness, and ability are supposed to dictate the degree and extent of one's participation in the rewards, benefits, and powers available in the society." (Crossland, 1970, p.x). The author aimed, therefore, to describe where America presently stands in the quest for equal and fair access to college.

Crossland found that the statistical data available to him were not wholly trustworthy. He cautioned the reader to

> remind himself frequently that the statistical data presented in the following pages are not exact, but rather are carefully developed estimates and extrapolations based on many different (and sometimes differing) sources. (p. xvi)

Validity

While many judgments had been made on a host of subjective considerations, facts on the minority situation were difficult to establish by hard data. Fred Crossland took the best available data to furnish the information necessary for any substantial discussion by educators and policy-makers of minorities in postsecondary education. The three major sources of national black enrollment data he used were: the Bureau of the Census; the Office of Civil Rights in the Department of Health, Education and Welfare; and research reports published by the American Council on Education. The census figures were based upon a detailed analysis of a survey of 50,000 representative households rather than a national head count. The Office of Civil Rights collected estimates and reports from many, but not all, colleges and universities. The

American Council on Education's figures were limited to new freshmen and were based on questionnaires received from students at a representative sample of higher institutions. The author found that these sources and their system of data collection left much to be desired and the differences between their results were large and difficult to reconcile. With these limitations, Crossland's data can be accepted as the best description of the early 1970's. His study provided a prudent basis for policy decision considering the time restraints and the available data.

Using Crossland's data, we constructed Table 17 describing the minority higher education status for 1970. The projections he made on these data are interesting. Based on the figures contained in Table 17, Crossland suggested that it would be necessary to increase the rate of enrollment by seventeen or eighteen percent over a five year period, more than double the present rate, to achieve and maintain parity as a national goal.

TABLE 17. MINORITY HIGHER EDUCATION STATUS: 1970

Minority Status	Total Population	Total in Higher Education	Minority Freshmen
Black Americans	23,555,000 (11.5%)	470,000 (5.8%)	132,000 (6.6%)
Mexican Americans	5,000,000 (2.4%)	50,000 (0.6%)	18,000 (0.9 %)
Puerto Ricans	1,500,000 (0.7%)	20,000 (0.3%)	8,000 (0.4%)
American Indians	700,000 (0.4%)	5,000 (0.1%)	2,000 (0.1%)
Sub-total	30,750,000 (15.0%)	544,000 (6.8%)	160,000 (8.0%)
All Others	174,250,000 (85.0%)	7,506,000 (93.2%)	1,840,000 (92.0%)
Total	205,000,000 (100.0%)	8,050,000 (100.0%)	2,000,000 (100.0%)

Source: Adapted from Crossland (1971) pp. 10, 13, 19, 20.

External Validity of Crossland's Study

The Census Bureau figures for minority enrollments for 1970 confirmed Crossland's assessment and clearly portrayed what must yet be done to achieve parity with the white majority in the field of postsecondary education of minorities. Table 18 shows how disastrous the situation was in

1970: eighty percent of blacks in the college age group, 18-24 years of age, had no college education; eighty-one percent of American Indians had none; while eighty-nine percent of those of Mexican parentage had no college education. This situation was high-lighted when contrasted to the college enrollment of Oriental Americans. Chinese in the same age group, 18-24, had only thirty-one percent and the Japanese had only thirty-four percent with no college education.

TABLE 18. PARTICIPATION RATE FOR PERSONS 18-24-YEARS-OLD BY RACE AND ETHNIC GROUP: 1970 (PERCENTAGES)

Race and Ethnic Group	Enrolled in College	Not Enrolled	
		Some College	No College
Mexican Parentage	12.7	6.9	80.0
Mexican Birth	7.0	4.4	88.6
Negro	12.5	7.4	80.2
Indian	11.1	7.8	81.1
Japanese	45.7	20.5	33.9
Chinese	57.9	11.3	30.8
Other Non-whites	21.9	15.5	62.5
All Others	25.2	14.8	70.0
All Groups	23.6	13.9	62.5

Source: U. S. Bureau of the Census, 1970 Census of Population

The external validity of the Crossland findings and conclusions is further strengthened by the 1972 Talent PROJECT data as tabulated by the National Commission on the Financing of Postsecondary Education. The National Commission focused on the highest educational attainment of various minorities: Blacks, Oriental Americans, American Indians in comparison to Caucasian Whites. Once more Orientals had the best record excelling even whites in their general educational level (Table 19).

TABLE 19. PERCENTAGE DISTRIBUTION FOR HIGHEST EDUCATIONAL ATTAINMENT BY RACE AND ETHNIC GROUP, MEN AND WOMEN, 1972

Race/ethnic Group	High School Dropout	High School Graduate	Less Than 2 Years--College	2-4 Yrs. College	Total
Men					
Black	27	47	9	16	100
Oriental	1	42	17	41	100
Caucasian/white	10	37	20	33	100
American Indian	20	63	7	10	100
Female					
Black	21	49	11	19	100
Oriental	0	37	29	34	100
Caucasian/white	13	48	14	26	100
American Indian	71	71	1	4	

Source: Project TALENT, special tabulation. The National Commission on the Financing of Postsecondary Education: Financing Postsecondary Education in the United States, p. 144.

It is also clear from Table 19 that blacks had a serious dropout problem at the high school level. Twenty-seven percent of the men and twenty percent of the women dropped out of high school in contrast to ten percent of white men and thirteen percent of white women. Orientals again had the lowest dropout rate: only one percent of Oriental men dropped out and zero percent of women. Another factor stood out when comparing highest educational attainment with race and ethnic groups. Sixteen percent of the black men had two to four years of college; thirty-three percent of the white men attained this level, and forty-one percent of the oriental men achieved two to four years of college. The disparity was remarkable. Another interesting and often repeated finding was that more black women, nineteen percent, had from two to four years of college. In all statistics, the plight of the American Indian was the worst. Twenty percent high school men dropout, and an extraordinary dropout rate of seventy-one percent was documented for Indian women. The disparity between Indian men and women was carried along to college where only ten percent of men attained a two-to four year college education. As few as four percent of the women attained two-to-four years of college.

Policy Relevance of Crossland's Study

Crossland showed that the increasing urbanization of blacks is changing the patterns of school attainment and access to postsecondary institutions. Public, urban, junior, and community colleges are the most important entry points for blacks into the postsecondary educational system. In 1970 more than half of all black freshmen were in two-year public colleges. *De facto* and *de jure* segregation of blacks on higher educational level is indeed gradually eroding. Crossland estimated (because an exact count was not available) that almost two-thirds of all black students in 1970 were enrolled in other than traditionally black institutions (p. 34).

If parity is an acceptable national goal, the Crossland estimate that minority enrollment would have to be increased by seventeen percent over a five year period to attain parity is an important and valid policy relevant conclusion. The dramatic educational achievements of Oriental Americans would seem to indicate that ethnicity as such is not a "cause" of poor college attainment.

The Effects of Negro Density on Student Variables and the Post-High School Adjustments of Male Negroes, Kapel (1968)

Project TALENT data has been the basis for many studies on postsecondary behavior of high school seniors. The base year for Project TALENT was 1960. Because the ethnic identity of Project TALENT participants was not identified until 1965, David E. Kapel secured this missing data by asking ethnic identity in his follow-up sample. The major concern of the Kapel study was: to evaluate Negro density and other selected environmental factors as to their effect on the post-high school adjustment of male Negroes from the twelfth grade Project TALENT sample.

A multivariate analysis of variance design was used. A major weakness of this design, however, was the sample of 444 black male students utilized to reflect the black male student population between specific age intervals. When the sample was partitioned according to regions--urban, rural, and high/low density factors--the impact of the poor sample size was most evident; seven black males represented the urban southwest; eleven represented the rural midwest, etc. (pp. 29-30). The high rate of non-response by black males to the total questionnaire and to certain questionnaire items added to the weakness of the research design. These errors alone vastly limit the scope of the study. For example, a high proportion of the sample---240 students--had elected to continue their education beyond high school. These students, likewise, were more likely to attend colleges than non-college institutions in their continuing educational careers. These results illustrate the atypicalness of the sample and further reflect the bias that appears in studies dealing with voluntary respondents to follow-up questionnaires. The results of the analysis indicated that the subjects reflected higher socioeconomic educational aspirations and tended to be homogeneous in this respect, regardless of the environmental effects studied,

The general design was appropriate to the proposed research question. The problem was not with the research design, but with the sample size. Statistical techniques were also in basic conformity with the general design. Nevertheless, statistical techniques cannot replace or satisfy the demands for a representative sample. The conclusion that forty-one percent of the black males had either attended or were in college is inconsistent with all other data collected in 1965 or subsequently.

Any generalizations from this sample to the national black male population would prove invalid. Some of the findings, however, are consistent with other studies in this area.

> . Without considering co-factors, it might be concluded that subjects attending segregated schools tend to be inferior to those attending desegregated schools. (p. 38)
>
> . The results indicate that Negro density is a very significant factor and that subjects in the sample from high density schools tend to be below the subjects from low density schools in terms of the social economic environmental index and aptitude. (p. 38)
>
> . Although the environmental-parameter groups can be distinguished, the differences were generated

> more by regional influences than by the influences of community and/or Negro density factors. (p. 38)
>
> - Regional differences among schools, and not community differences or racial composition, was the most influential environmental factor. (p. 60)
> - The results indicate that the subjects in this study attending schools in the Northeast-Midwest region of the country are "better off" socially and intellectually than those from the South (p. 60)

Although the negative correlation between density and educational achievement showed up as spurious when region was controlled, the question of black high school density is indeed a major policy question. Black density is a variable subject to policy manipulation. The problem of racial balance is a current topic of debate relative to the effects of black density on student variables and post-secondary adjustments. Kapel's study unfortunately did not greatly assist the discussion due to poor sampling procedures.

The Negro Student at Integrated Colleges, by Clark and Plotkin (1965)

The National Scholarship Service and Fund for Negro Students (NSSFNS) commissioned Kenneth B. Clark and Lawrence Plotkin to make a follow-up study of five "alumni" classes of students who as high school seniors sought some type of aid, counselling, or financial assistance from NSSFNS in order to enter interracial colleges in the years 1952-1956. The basic data were obtained from various sources to cover three major periods in the lives of the "alumni":

> Precollege Information--supplied by the student and the high school at the time of the initial NSSFNS contact;
>
> College Performance--supplied by the college in the form of a transcript;
>
> Postcollege Adjustment--supplied by the student in response to a questionnaire mailed to him several years after college graduation. Retrospective information on college experiences was included in the questionnaire.

The total population of the "alumni" students was 1,519. After three mailings, 545 questionnaires were returned, of which thirty-six were unusable, leaving 509 students with full information, that is 35.2 percent of the original sample.

The descriptive design may be viewed as a singular design only from the fact that the authors worked with the same population. But the design itself had three distinct facets: 1) describing the college performance of the selected blacks at interracial institutions; 2) dividing the population into three subgroups on the basis of academic achievement and obtaining correlates to this achievement; and 3) obtaining from the blacks who attended college retrospective views on the college experience as well as current life style patterns.

Internal and External Validity

The major problem in this study was the selectivity of the sample. Only those students who responded to the mailed questionnaire were included--a problem inherent in the use of mailed questionnaires. No attempt was made to interview those who did not respond or to correct for this error. Females were overrepresented in the sample creating a bias and further limiting generalizations to the total black college population. The authors also failed to indicate the statistical tests used, even though they provided levels of significance. The design, nevertheless, was capable of testing certain correlational factors with the achievement levels of the designated sample, but no valid conclusions can be generalized beyond this selective sample.

Findings

College performance:
- 80.2 percent of the students were awarded degrees.
- 4.5 percent stated that they were in the process of receiving a degree.
- 9.9 percent were considered dropouts. (p. 15)

College grades:
- 31 percent achieved an average of B- or better.
- 50 percent achieved C+ or worse for the four years.
- Less than ten percent graduated with honors and about one percent reported election to Phi Beta Kappa.

Geographical:
- Students born in the South tended to achieve higher college grades than those born elsewhere.

Income and occupation of parents:
- There was no relationship between family income of this sample and academic success in college.
- Academic success was directly related to the parents' occupational level.
- Parents' college attendance and degree are associated with academic success of their offspring.

Precollege test scores:
- The predictive value of intelligence tests administered in high school is not high.
- Grades are slightly superior at prestige institutions than at others.

Other findings pertaining to college experience and post-college adjustment were given. The authors found a slight relationship between the region of birth and academic success. Approximately forty-seven percent of the best academic group were born in the South, while only 36.7 percent were born in New England and the Atlantic States. Clark and Plotkin were confident that their findings refuted the preconception that blacks received better educational preparation in the Northern high schools. However, there was no basis for this inference. One might equally suggest an alternative hypothesis that many of the brighter Northern students did not go to NSSFNS for counsel or seek financial assistance from them and were not accounted for in their sample. A repeated error in this study was the drawing of generalizations to populations of blacks when the sample was not representative of black students in general.

Although no explict recommendations were made, one implication stood out. The authors suggested that test scores cannot be used for predicting the academic success of the black student in their sample, or probably for black students in general, in the way that test scores are used to predict college success for the more privileged white student. This generalization is questionable because it was drawn from a highly selective and biased sample, with unknown distribution assumptions. Clark and Plotkin did not provide evidence for this generalization.

Another typically universal conclusion, not based on empirical evidence was stated:

> Thus, the Negro student who enters an integrated college will successfully complete it at a greater rate than his white counterparts even though initially he may not be as well-prepared academically and financially. (p. 18)

Policy Relevance

No policy regarding the use of standardized tests as predictors for black students in college, and no school segregation policy can be safely recommended based on Clark and Plotkin's study. Sampling errors diminished the value of the study for scientific and policy purposes.

Black and White Freshmen Entering Four-Year Colleges, by Alan Bayer and Robert F. Boruch (1969)

In 1968, the Office of Research of the American Council on Education (ACE) decided to stratify their annual compilation of data to include minorities. Alan Bayer at that time held the position of ACE research sociologist and Robert F. Boruch was his research associate. They were able, therefore, to fix 1968 as a baseline year for possible longitudinal studies which might answer the following policy questions:

- What new needs will place demands on colleges as a result of increased minority enrollment?
- What new curricula and programs might need to be adopted?
- What new specific remedial, guidance, and counseling programs need to be adopted?
- What new financial resources would be needed?
- How will changes in the admission policies ultimately affect the black colleges?
- Is the recruitment of black students by white colleges actually bringing a larger proportion of black students into higher education or are the same proportions being redistributed?
- How will the racial composition of colleges change over time?

In the fall of 1968, more than 300,000 freshmen from a national representative sampling of American colleges and universities completed a four-page questionnaire that included items on demographic and socioeconomic background, high school background, life plans and aspirations, and sources of college financing. More than 83,000 of this sample were enrolled in four-year institutions. This number included 5,384 black students in nineteen predominantly black four-year colleges, and 1,996 black students and 75,820 white students in 200 predominantly white four-year colleges (pp. 371-372).

It was on this 1968 data that Bayer and Boruch hoped to establish firmly their baseline for ACE longitudinal studies and for future research on blacks in colleges. The data was differentially weighted to adjust statistically the item responses to approximate national population estimates of the freshman composition of the 1,154 predominantly white four-year colleges and the ninety-three predominantly black four-year colleges in the United States. The weighting procedure made the findings representative of an estimated 537,000 white students and 51,000 black students (36,000 in predominantly black and 15,000 in predominantly white colleges who entered American colleges in 1968 (p. 373).

Internal and External Validity

We can rate this descriptive research design by Bayer and Boruch as adequate both for internal and external validity. Generalizations derived from the data on freshmen entering four-year colleges in 1968 could validly be drawn. The authors presented the distribution of black and white students on 1) demographic characteristics--sex, age, residence, and religious preference; 2) academic aptitude test score differences; 3) socioeconomic background differences; 4) differences in high school performance; 5) comparison of life plans and aspirations; 6) variations in financial support, and 7) student attrition.

This comparative descriptive information yielded more precise national normative data on both black and white college students than had been available previously. The limited time perspective (1968) inherent in the data collection, however, allowed only partial answers to the many questions posed in the introduction. Nevertheless, the information provided some relatively unambiguous implications, and the tabulations the authors provided certain representative and relatively stable baseline data to which future data may be compared for time-trend studies.

Policy Relevance

We are primarily interested in those variables associated with entrance, persistence, and achievement. Consistent with previous studies, the data indicated that blacks were more likely to be from low-income urban families with below-average aptitude test scores. Blacks tended to have high educational aspirations despite their background limitations. Those who entered college more often choose to enter business fields, teaching, the social sciences, or health-related specialties.

The survival rate of black students in four-year colleges, however, was exceptionally high. Yet, the three-quarters of American colleges providing data for this study, enrolled less than five percent of their students from the black population. Bayer and Boruch raised two major policy questions:

- How can the percentage of blacks in predominantly white institutions be increased?
- What will happen to the predominantly small black colleges competing with white and large black colleges for the most able black students?

This study provided a solid baseline for further comparative studies, but hardly answered the policy questions they initially raised. Bayer and Boruch clearly understood that follow-up longitudinal studies would be required. However, their efforts to establish a 1968 baseline were commendable.

Graduate School Programs for Minority Disadvantaged Students, I. Bruce Hamilton (1973)

The purpose of the survey was to obtain specific information about procedures and programs developed for minority and/or disadvantaged students by graduate schools. The Council of Graduate Schools in the United States and the Graduate Record Examination Board co-sponsored the study conducted by I. Bruce Hamilton.

In 1969, Mary Ellen Parry of Educational Testing Services conducted an exploratory survey of such programs for the Graduate Record Examination Board and the Council of Graduate Schools. The results of that survey were tentative, but did indicate that some programs were under way at the time and that others were being contemplated. Although several categories of pertinent data were gathered, Parry's survey--according to Hamilton--was not designed to elicit detailed information. Hamilton hoped his study of graduate schools would accomplish this task.

Hamilton found that in fifty-nine institutions responding, a particular person in the graduate school was assigned to implement policy. He also identified two major groupings of institutions: one large group had policies, written or understood, to assure "equal treatment" of minority and disadvantaged applicants to graduate programs; and a somewhat smaller but substantial group of institutions reported that "special efforts" were being made to recruit and enroll such students in a manner similar to affirmative action efforts.

The existence of a formal or informal institutional policy, however, did not appear to be as crucial to direct action or special procedures as the type of policy. Institutions which assured equal opportunity or nondiscrimination represented the bulk of the institutions which reported on policies. Many reported the critical factor to be the institutional undertaking an affirmative action program. This was seen by some as an essential step in righting previous social injustices; by others, as blatant reverse discrimination. The issue was clearly a point of vigorous contention.

Fewer institutions in the total sample reported special services for students once they were enrolled, than the number who made special recruiting efforts. Most institutions offered special arrangements to minority students. While Hamilton acknowledged that not all minority students were disadvantaged, for the purposes of institutional policy and efforts, a minority designation was operationally the most significant descriptor. The availability of tuition aid was the area cited most often as the special attention given to minority/disadvantaged students; followed by assistance in making adjustments to the college community, reduced course loads, special tutoring, opportunities for teaching or assistantships, and finding off-campus housing. Most of the institutions reported that funds designated for minority/disadvantaged students were funds available out of their own operating resources. Overall, the institutions were awarding financial aid to a higher percentage of minority students than to other graduate students. Large institutions had a distinct advantage in allotting funds for minority/disadvantaged students from their operating funds. Federal and foundation funds accounted for a relatively small proportion of minority/disadvantaged financial aid.

Evaluation efforts gave little attention to overall success from the time the student was recruited through graduation and post-degree employment. Thirty-five percent of the responding institutions said there were evaluation efforts, compared with 57.9 percent who said that their programs were not evaluated. The criteria used for evaluation, however, can hardly be considered evaluative. The criteria most often cited were the number of minority/disadvantaged students who applied, were admitted, and enrolled. Another criteria were the increases in the number of minority/disadvantaged students retained in the program, the number graduated, the number receiving degrees in relation to the number admitted, and the percent of minority/disadvantaged students in relation to the total graduate enrollment. The questionnaire actually used these items as criteria for evaluation. There were no questions asked relative to the objectives of special policies, procedures or outcomes.

In sum, the survey showed that between 80 and 110 of the institutions which comprise the membership of the Council of Graduate Schools have specifically designed policies or procedures aimed at meeting the needs of minority/disadvantaged students at the graduate level.

Internal and External Validity

The descriptive design was appropriate to the questions posed by the study and its purpose to describe and obtain insight into the programs for minority/disadvantaged students in graduate schools. The description of the survey procedure and instrument was very good. It would be possible to replicate the study in detail.

The author discusses his findings in terms of association but the data is not organized clearly to show these associations. The design could have been, with some preplanning, a correlational design in which statistical controls were used.

The author attempted to acquire the universe rather than a sample of members of the Council of Graduate Schools. Actual sample size was 195 from a total of 302 (64.6

percent.) The sample overrepresented some categories, regions, and degree levels and underrepresented others. The total CGS population was subdivided into categories by type of control, highest degree offered, region of the United States, size of the city in which located, and size of the graduate school. Sampling was selective in various categories, making them questionable, given the type of raw data possible from the questionnaire.

Many of the author's conclusions were restatements of his findings:

- Enrollment of minority students at the graduate level has continued to increase.
- Minority students enrolled primarily in education and the social sciences.
- Minority students (with the exception of Orientals) were not attracted to fields requiring extensive pregraduate technical training, such as engineering and the physical sciences.
- There was little overall coordination among efforts of departments and those sponsored by the dean of graduate studies.
- Informal and formal policies with regard to education of minority/disadvantaged students existed.
- Evaluation on student's overall success was lacking.
- Size of graduate program and its location on a rural to urban continuum were powerful determinants of the institution's ability to respond to increases in minority/disadvantaged student enrollments.
- Degree of commitment to enroll minority/disadvantaged students and relax strict interpretation of test scores was a key to increasing enrollments.

- funds for the most part came from operating budgets.
- Only half of the institutions recruiting and enrolling minority students had specifically designed academic programs for minority interests.

The findings and the insights gained from the questionaire helped Hamilton describe the following seven characteritics as typical of the twenty-five most effective institutions:

- Most have articulated policies with regard to minority/disadvantaged student enrollment.
- Once a policy has been adopted, recruiting, special admission, and student services must be actively coordinated above the departmental level.
- Recruiting must be a cooperative effort between the graduate school and the departments.
- A good recruiting effort includes an accepted definition of the type of student sought and the geographical region on which to focus effort.
- An effective program provides special arrangements for the admission of students with marginal or submarginal credentials.
- Under the coordinating purview of a single administrator or committee, services to enrolled graduate students must be provided in those areas where minority/disadvantaged students need particular attention.
- An effective program for minority/disadvantaged students includes provision for continuous evaluation. (pp. 73-78)

These characteristics should prove most helpful to graduate school policy-makers as well as to politicians and those foundations and governmental agencies interested in effective graduate programs for minority graduate students.

Summary on Ethnic Minority Groups and College Education

There was a consensus among authors that much was yet to be accomplished in the provision of hard data in relation to ethnic and minority groups and their access, persistence and achievement in postsecondary education. The data, however, that does exist, provides sufficient basis for prudent estimation of the situation of minorities as far as policy makers are concerned.

In comparing various ethnic minority groups, the Chinese and Japanese were outstanding in their pursuit of education even surpassing the white majority. For other minorities to achieve parity with whites, Crossman correctly estimated that recruitment of blacks, Indians,and Mexican Americans would have to increase at least seventeen to eighteen percent immediately. Clearly this is a long-range national goal, not an immediate objective. A two percent increase per annum for the next ten years would bring about parity assuming that the white rate remains static. The dropout rates among minorities in high school, Orientals once more excepted, is a serious policy problem. Students lacking basic oral and written communication skills after high school graduation is an equally serious policy problem which must be addressed. The type of postsecondary institutions attended by ethnic minorities is changing. The movement of blacks to northern cities after World War II and the overall urbanization of blacks as a group had quite dramatic effects on their postsecondary education and on the type of college attended. Crossman estimated that almost two-thirds of all black students in 1970 were enrolled in other than traditionally black institutions. Bayer and Boruch (1969) were concerned about this trend. They asked what is going to happen to private black colleges as they compete with white and large black colleges for the most able black student. The student lacking basic skills is not in general sought by any college--large or small. The lack of basic skills was an implied serious threat to postsecondary education of minorities. Motivation is not an ethnic problem nor a problem for blacks in general.

Thus a final policy-relevant conclusion emerged from the literature on minorities. Ethnic minority status, as such, is not a major barrier to postsecondary education as evidenced by Oriental students not to mention the Jewish ethnic group. Today the lack of the competencies and basic skills for successfully achieving the benefits of postsecondary education looms as a far more critical barrier to equalizing educational opportunities. When lack of basic skills is more prevalent in one ethnic group than in another, that ethnic group is clearly placed at a disadvantage. A research question emerges: What are the internal and external sociocultural forces that cause a differential distribution of the lack of basic skills among ethnic groups.

Proposition IV

FEMALE STATUS LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS AND PERSISTENCE, BUT NOT FOR ACHIEVEMENT.

The minority status of women has had a definite negative impact on their college access and persistence, not however, on achievement. The selective process perhaps worked in the past to favor the achievement of women in college. This bias can be expected to diminish as the ratio of women begins to equal that of men in postsecondary institutions.

American colleges and universities have come some distance since the 1800's when debates centered around whether or not women should be admitted. Yet the fact remains that as of 1973, women, who constitute fifty-one percent of the 18-24 year-old population, make up only forty-four percent of the undergraduate enrollment and thirty-nine percent of the graduate. When enrollments are combined, women make up only forty-one percent. Table 20 illustrates this more clearly.

TABLE 20. OPENING FALL ENROLLMENT FOR DEGREE CREDIT IN COLLEGIATE INSTITUTIONS, BY SEX (1950-1970)

	Men		Women	
	Number	Percent	Number	Percent
1950	1,569,322	68%	727,270	32%
1955	1,747,429	65	931,194	35
1960	2,270,640	63	1,339,367	37
1965	3,396,574	61	2,173,697	39
1970	4,636,641	59	3,283,508	41

Source: U.S. Office of Education, Opening Fall Enrollment in Higher Education, 1965, 1968, 1970.

In 1972, thirty-nine percent of the female high school graduates went to college as compared with fifty-three percent of all male high school graduates. Not surprisingly, women who do go on to college rank well above men on the average in high school achievement and in admissions tests. The disparity is even greater at the graduate level where women again score higher than men on admissions tests, but in 1971-1972 constituted only 7.7 percent of law school enrollments and 10 percent of medical school enrollments.

There are, of course, many reasons for the underrepresentation of women. Perhaps the most significant, according to the National Commission on Financing of Postsecondary Education (1973) "has been the use of quota systems by coeducational institutions, public as well as private, to maintain male majorities. Such quotas are clearly discriminatory based as they are on the belief that men are in greater need of college training for future employment than women" (p. 47).

There is also evidence that women are discouraged from going on to college by high school counselors, that they face difficulties in competing with men for part-time earnings (as a consequence of which they must rely more on family aid), and that they are subjected to sex discrimination in the distribution of student financial aid. According to a 1972 Educational Testing Service study, women averaged $215 per year less than men in financial aid, despite equal financial need. Women, of course, are virtually excluded from some aid--notably most athletic scholarships and Veteran's benefits. This too is changing. Women also face substantial discrimination at the graduate level where, largely because they are discouraged in many ways from going on for further study, they receive only about twenty percent of the available fellowships. According to the U. S. Office of Education statistics, thirty-seven percent of female graduate students receive stipends of some kind as compared with forty-nine percent of the male students.

Proposition IV on sex has been demonstrated in many of the studies already evaluated. Sex has been one of the independent variables studied in most works. To avoid duplication therefore, it was decided not to deal with specific studies relating to female status.

Proposition V

THE HIGH SCHOOL CURRICULUM FOLLOWED IS THE MOST CRITICAL OF ALL SOCIOCULTURAL VARIABLES AFFECTING ENTRANCE, ACCESS, ACHIEVEMENT AND PERSISTENCE

Choices made on the secondary level have many implications, not only for the student but also for policy makers. The curriculum decision made by the students in their early teens, plus the enduring social and psychological correlates of this decision, are major determinants of the students' postsecondary behavior. Policy makers and educators must be aware of all the implications of this early choice. Two studies evaluated establish the overriding importance of high school curriculum.

- Academic Socio-Economic Factors Related to Entrance and Retention at Two-and Four-Year Colleges in the Late 60's Jaffe, A. J., and Walter Adams. (1970)

The Longitudinal Study of Educational Effects:
Its Use in Policy Analysis (LSEE) 1974
Marjorie Chandler

Academic Socio-Economic Factors Related to Entrance and Retention at Two-and Four-Year Colleges in the Late 60,s by Jaffe, A. J., and Walter Adams. (1970)

We have already evaluated this study and found it to have internal validity. Its finding are generalizable and in conformity with the LSEE study. Of the eight variables Jaffe and Adams (1970) studied, the high school curriculum a student followed had by far the strongest relationship to college entrance, the type of college entered, and the persistence of the student in both two- and four-year colleges. The student's estimate of his own brightness in high school, relative to his classmates, bore a stronger relationship than did his high school grades to college entrance or failure to enter. The student's academic self-image was considerably more related to college entrance than any of the socioeconomic variables the authors studied. Nevertheless, the high school curriculum was of riding significance relative to entrance and persistence.

The college preparatory entrant tended to select senior rather than junior colleges. College preparatory students predominated among all college entrants in junior, as well as senior colleges. Jaffe and Adams predicted that when open enrollment programs eliminated the college preparatory curriculum as an important criterion for college entrance, changes in the college population might be expected. Significantly larger proportions of non-college preparatory students, according to Jaffe and Adams, will enter postsecondary institutions.

One major consequence of larger proportions of non-college preparatory students entering four-year colleges was a higher dropout rate. Junior Colleges already suffered from a high attrition rate (sixty-four percent dropout rate), and Jaffe and Adams estimated that more than two out of three entrants would drop out as more non-preparatory students continued to enter two-year colleges. Dropout rates were three times as frequent at two-year colleges than at four-year schools.

The relationship of dropouts to high school curriculum was clearly demonstrated by the authors. Less than four out of twenty college-preparatory students dropped out from four-year colleges and nearly nine out of twenty entrants dropped out who followed the non-preparatory curriculum. The attrition rate in two-year colleges was even higher; eleven out of twenty college-preparatory entrants dropped out, compared to fifteen out of twenty students who followed the non-preparatory high school curriculum.

Policy Relevance

Jaffe and Adams' study is an important policy-related study. The authors correlated the high school curriculum followed with entrance, persistence, and drop-out rates in two and four-year colleges. The findings provide content for serious consideration by policy makers. Nevertheless, there is a great need of further research on dropout and retention rates relative to high school curriculum. Looking at the policy implications of their findings, Jaffe and Adams wrote:

> Educators and educational officials appear to have considerable awareness of the pivotal role of curriculum choice for college entrance and for the type of college entered, but less awareness of its relationship to continuation or dropout from college. Nor do they seem to be aware of our inferential finding that it is not only the curriculum per se that determines post-high school behavior, but also, and perhaps more significantly, less understood and enduring social and psychological correlates of the curricular decision in the student's early teens. (p. 18)

Perhaps the time has come for a total reconsideration of the present high school tracking system. That which answered the needs of the first half of the twentieth century may now be obsolete faced with the educational requirements of American society approaching the year 2000 A. D. Or perhaps better counselling regarding curriculum choice may obviate much of the problem without any drastic revision of the entire system. The longitudinal study by the Office of Education which we will discuss next, confirms the findings of Jaffe and Adams on the effect of high school curriculum.

The Longitudinal Study of Educational Effects: Its Use In Policy Analysis (1974) by Marjorie Chandler.

In 1972 the National Council on Educational Statistics undertook a longitudinal study of educational effects to contribute substantive data for educational and occupational policy decision makers. The study was entitled "The Longitudinal Study of Educational Effects: Its Use in Policy Analysis" (LSEE). This study was planned primarily to promote an understanding of how well the American educational system has prepared young adults for the transition from high school to the postsecondary world of education or work. It was not designed to test a research hypothesis, but rather to provide data for decision making. The LSEE team identified four outcomes that such a scientific data base would provide for decisions.

- Education and training programs and facilities to develop fully the capabilities and talents of the population.
- Equality of educational opportunity, without compromising emphasis on excellence.
- Identification of social and economic factors which change over time and which may affect drastically the educational and vocational progress of young people.
- Development of human and material resources that will meet critical social and economic priorities.

Sample

The basic design called for a nationally representative sample of 21,000 seniors in 1,200 schools. The sample was stratified by seven variables which were of interest either for classification purposes or because they were thought to be associated with postsecondary attainment of students. In each school there was a random sample of eighteen seniors and a sample of one or two twelfth-grade counselors. It was planned to follow these students over a period of six to eight years collecting information on their experiences, activities, attitudes, satisfactions, environments, and plans as they progressed into early adulthood. The first follow-up began in October 1973; completion was expected in April 1974. It was hoped to have ninety percent response for the initial primary sample. Telephone calls and waves of postcards were used in a highly structured manner to stimulate response. Figure 8 starting with Spring 1972 indicates the collection schedule and activity patterns for the first four years, 1972-1976.

Content of the Questionnaire

Decisions regarding the content and scope of LSEE's questionnaires were made on the basis of extensive consultation with potential users of the data, as well as study of past longitudinal surveys. Input came from all sectors of the educational community, several Bureaus of the Office of Education (including the Office of Planning, Budgeting, and Evaluation, Bureau of Higher Education, and Bureau of Adult and Vocational and Technical Education), other Federal agencies (including the Department of Labor and Defense), a special subcommittee of the Chief State School Officers, and planning groups made up of leading educational researchers. The longitudinal study bore a direct relationship to policy in the decision to include new social emphases in education as they arose. For instance, questions were added on postsecondary education other than traditional higher education after the 1972 Educational Amendments Act emphasized these aspects of education.

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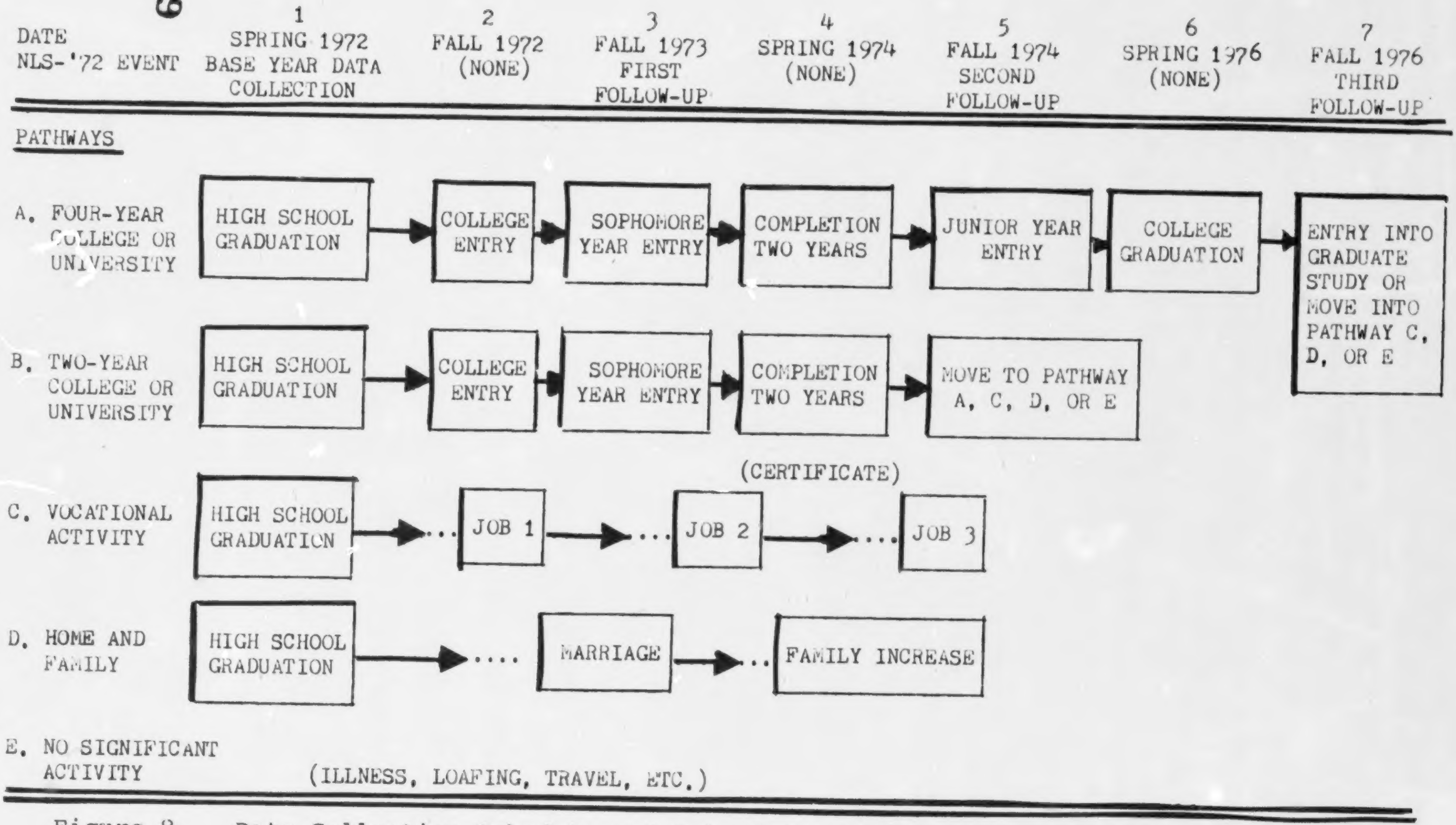
DATE
NLS-'72 EVENT
1
SPRING 1972
BASE YEAR DATA COLLECTION
2
FALL 1972
(NONE)
3
FALL 1973
FIRST FOLLOW-UP
4
SPRING 1974
(NONE)
5
FALL 1974
SECOND FOLLOW-UP
6
SPRING 1976
(NONE)
7
FALL 1976
THIRD FOLLOW-UP
PATHWAYS
A. FOUR-YEAR COLLEGE OR UNIVERSITY
HIGH SCHOOL GRADUATION
COLLEGE ENTRY
SOPHOMORE YEAR ENTRY
COMPLETION TWO YEARS
JUNIOR YEAR ENTRY
COLLEGE GRADUATION
ENTRY INTO GRADUATE STUDY OR MOVE INTO PATHWAY C, D, OR E
B. TWO-YEAR COLLEGE OR UNIVERSITY
HIGH SCHOOL GRADUATION
COLLEGE ENTRY
SOPHOMORE YEAR ENTRY
COMPLETION TWO YEARS
MOVE TO PATHWAY A, C, D, OR E
C. VOCATIONAL ACTIVITY
HIGH SCHOOL GRADUATION
JOB 1
JOB 2
(CERTIFICATE)
JOB 3
D. HOME AND FAMILY
HIGH SCHOOL GRADUATION
MARRIAGE
FAMILY INCREASE
E. NO SIGNIFICANT ACTIVITY
(ILLNESS, LOAFING, TRAVEL, ETC.)

Figure 8. Data Collection Schedule and Selected Activity Patterns: 1972-1976

Source: Chandler (1974). Chart 1, p. 2.

Findings related to college plans and/or other postsecondary educational or career activities are summarized in Table 21.

TABLE 21. SOME FINDINGS FOR THE BASE YEAR 1972 ON COLLEGE PLANS

Planned Activity	Percent of Item Response
Work full-time.	25.61
Work part-time.	2.11
Enter apprenticeship or on-the-job training program.	2.84
Go into military service.	3.54
Take academic courses at junior or community college.	10.84
Take technical or vocational courses at junior or community college.	5.44
Attend vocational, technical, or trade school of business college.	9.12
Attend four-year college.	33.64
Be full-time housekeeper.	2.78
Other (travel, stay at home, take it easy, no plans).	4.12
Total	100.00%

Source: Chandler, Marjorie O. (1974) p. 13.

When seniors with school plans were cross-tabulated with the curriculum followed in high school (Table 22) important policy related facts emerged. Among these findings the most extraordinary discovery was that 36.2

Table 22. ALL SENIORS WITH SCHOOL PLANS: 1972 (PERCENTAGES)

High School Curriculum	Four-Year College or University	Jr/Comm College Academic	Jr/Comm College Votech	Trade or Business School	Total
Academic	72.0	16.3	9.3	15.4	100.0
General	38.0	24.9	12.4	24.7	100.0
Votech	20.1	16.1	17.6	46.2	100.0
Total	57.0	18.2	9.2	15.4	100.0

Source: Marjorie O. Chandler,

percent of those who passed through the vocational/technical track had college academic plans (20.1 percent for a four-year college or university and 16.1 percent in a junior/community college,)in spite of the fact that the vocational/technical high school curriculum does not prepare students for college. Of those who completed a college preparatory curriculum, 88.3 percent planned to participate in a four-year or junior/community college academic program. But fifty-three percent of those who took the general curriculum had the same plans. This finding confirms previous research findings that a high school curriculum correlates highly with college access, and persistence.

The difficulty facing students lacking basic academic skills is a fact well etched on the consciousness of high school seniors. This is evidenced in Table 23 outlining the areas which students agreeded required more effort and expansion.

TABLE 23. AREAS IN WHICH THE SCHOOLS SHOULD EXPEND MORE EFFORT

Item	(Rank ordered by response.) Agreed
Help for students having trouble with reading and math	90%
Emphasis on Vocational and Technical programs	66-75%
Practical work experience	
Help students when they leave school	
Basic academic subjects (Math, Science, English)	50%
More television lectures	
More use of teaching machines or CAI	
Most required courses here are a waste of time.	50%

Source: Marjorie O. Chandler, *The Longitudinal Study of Effects: Design of the Follow-up Surveys*, March, 1974. Viewgraph 7

Surprisingly ninety percent of the high school seniors felt that help should be given to students experiencing difficulty with reading and mathematics. This student consciousness of the assistance needed in math and reading is both indicative of the gravity of the situation and perhaps signals the direction policy should take. Between two thirds and three quarters of the students agreed that there should be more emphasis on job-oriented activities. And finally one half of the students wanted to see more emphasis on basic academic subjects such as mathematics, science, and English.

The complex longitudinal design included a variety of variables, each measured by a number of indicators for the base year and follow-up study.

This brief description of the LSEE longitudinal study, demonstrates its magnitude and importance as a research effort. It will provide a sound data base for subsequent studies and fill the gaps in our knowledge of the postsecondary behavior of high school students. The potential for policy analysis is deserving of notice. Synthesis of important data for policy-making on an on-going, annual basis will be possible, and more sophisticated statistical techniques can be utilized for application to this accumulating data base. Data tapes, at relatively low cost to researchers and policy makers, will be available.

Internal and External Validity

The data of this study rate high on internal validity. Every effort was made to control sampling loss or mortality which would be most likely to affect interpretation of findings and generalizability. The cost of this effort would be prohibitive if the project were not generously supported.

Policy Implications

The importance of the curriculum followed in high school, both in relation to college plans and eventual attendance, stands out as one of the most critical issues in higher education today. Curriculum planning and support is a policy variable. Reforms on the secondary level, if equal opportunity for postsecondary education is to be attained, ought to be one of the nation's major priorities.

The concept of educational equality has always been present in American public education. At the beginning of the twentieth century it was manifest in a common curriculum which prepared high school students to go to college. As high school education became a general norm, however, the majority of high school students did not look beyond high school for the termination of their education. Discontent with the common curriculum as a preparation for the work world led to the development of other tracks: general, vocational, and technical. The LSEE figures indicate that a large majority now look to postsecondary education as a means of sharing in valued occupations and other life chances. Students coming out of the VOTECH track have plans to follow academic programs in college, finding that their high school curriculum failed to prepare them for broader pursuits. Furthermore, although little appropriate literature substantiates this charge, it is commonly alleged that minority and low socioeconomic youth are assigned to vocational curricula on the basis of ethnic/racial membership, and that while in high school they are not properly encouraged and assisted in seeking academic programs in preparation for college. If increased proportions of the high school population have plans for postsecondary education, the high schools must inescapably reexamine the students' competencies and indeed reevaluate the present curriculum outcomes. High school is no longer the termination point for most who graduate. Choices made in the high school years have life-long implications. The effects of high school curriculum choice on the student's future plans have not been fully explored. The Jaffe-Adams and the LSEE study would indicate that the time has come for major policy decisions regarding the high school track system and the adequate preparation of the ever-increasing numbers of VOTECH students planning an academic postsecondary education.

Summary of Sociocultural Variables

A great many studies analyzed the effects of sociocultural variables on equalizing educational opportunities for the disadvantaged populations. In selecting those studies that attempted to shed light on the causative or associative variables operating independently or together to "produce" the disadvantaged group, we found low socioeconomic status the most frequently studied variable.

Although not the most important variable, low SES was universally found to produce an independent effect. Research also ascertained that SES operated through other variables: parental encouragement, minority status choice of high school curriculum, and college plans. Parental encouragement was found to produce a more powerful independent negative effect than low socioeconomic status. Minority status correlated with equalizing educational opportunity. The voluminous literature, however, left much to be desired in explaining the effects of minority status on equal opportunity. Researchers ought to be stimulated to seek further explanations for continuing disparities between ethnic minorities in educational attainments particularly with the financial and discrimination barriers considerably reduced. The unsettled issue, consequently becomes even more evident and urgent: What cultural traits, peculiar to a given minority, apart from majority attitudes, constitute negative barriers? The exceptional pursuit of postsecondary education by Oriental Americans and Jews provides substance to such a supposition.

The minority status of women and past discriminations against them relative to access to postsecondary institutions and various professions and occupations was noticeably diminishing, perhaps much more rapidly than for ethnic minority groups. Nevertheless, the sex barrier appeared to be quite effective in limiting opportunities for women in many professional fields: medicine, architecture, engineering, teaching on the college level, etc. These male bastions provide the researcher with another probing issue.

Open door policies and choice of high school curriculum focused attention on still another eminent concern. All students graduating from high school given access to postsecondary institutions under open door policies did not possess the academic means to profit from the most desirable and advantageous aspects of postsecondary education. High school curriculum choice threatened equal opportunity for persistence and achievement especially in some of the more valued professions. Likewise, high school curriculum choice appeared to be a major focal point through which other sociocultural variables operated. Figure 9 illustrates a summarized network model of limiting sociocultural variables.

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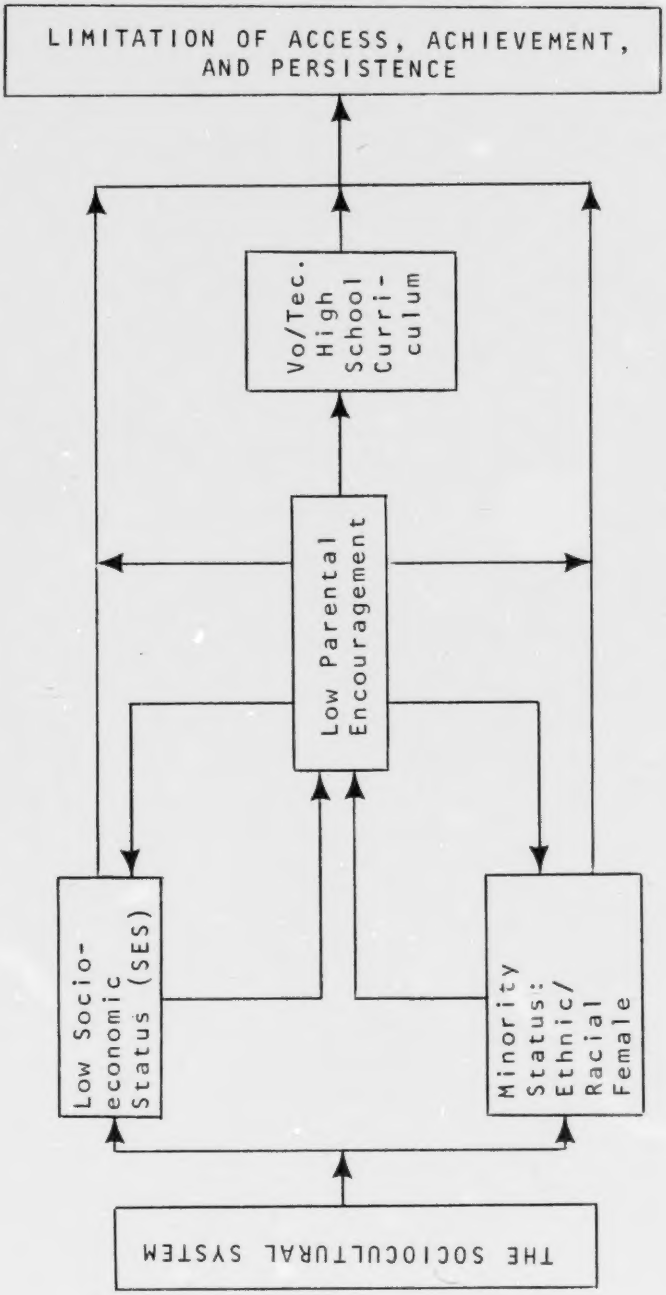
LIMITATION OF ACCESS, ACHIEVEMENT, AND PERSISTENCE
Vo/Tec. High School Curri-culum
Low Parental Encouragement
Low Socio-economic Status (SES)
Minority Status: Ethnic/ Racial Female
THE SOCIOCULTURAL SYSTEM

FIGURE 9. NETWORK OF MAJOR SOCIOCULTURAL VARIABLES LIMITING COLLEGE ACCESS, ACHIEVEMENT AND PERSISTENCE

Personality Variables

No matter what the outside pressures from the socio-cultural system, and no matter what the limitations of the ecological system, to go or not to go to college is foremost the student's decision. To achieve, to persist, or to drop-out likewise hinges on individual personal decisions. That network of variables--cognitive and affective which constitute the individual personality--consequently play a paramount role in the outcome of the high school student's decisions. Personality variables appear to play such an immediate role in decisions and choices that even the impact of socio-cultural and ecological systems comes directly and indirectly through the personality system. The body of literature occupied with cognitive and affective variables reveals a logical association with aspects of the student's personality.

Three cognitive and two affective variables have been chosen because of their immediate relevance to policy makers, program directors, and operators. The cognitive variables include: study habits, lack of basic skills, and academic ability. The affective variables explored embrace academic self-image, and motivation. Our endeavor to synthesize current scientific research has resulted in the subsequent cognitive and affective propositions.

Cognitive Variables

Propostion VI

LOW ACADEMIC ABILITY LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE MORE THAN LOW SES BUT LESS THAN POOR SELF-IMAGE

There is an obvious distinction between high school achievement and academic ability. Nevertheless, postsecondary institutions have consistently taken high school achievement as a measure of ability and as a predictor of subsequent college achievement.

Generally high school overall average or rank in the graduating class and ACT or SAT scores have been used to identify and select students for admission to college. As the press for postsecondary education has become more intense among minority groups and students from lower socioeconomic backgrounds, however, these traditional predictors of college success have been challenged, because it has become increasingly apparent that the traditional criteria tended to exclude such groups from the predominantly white selective institutions.

A few studies have produced some evidence that perhaps the relative validity of high school grades as predictors of college success for students from socially and economically excluded ethnic groups should be reappraised (Thomas and

Stanley, (1969). Vaughan (1968) suggested that there are cognitive and personality factors which differentiate students who are dismissed for academic reasons from those who withdraw voluntarily. In Vaughan's study, dismissed students scored significantly lower on the cognitive measures than persisting students; although the withdrawing student scored somewhat lower on these measures, the differences failed to attain significance.

The literature assessed generally treated the effect of intelligence and/or academic ability as a control variable. The Sewell and Shah (1967, 1968) studies previously discussed carefully scrutinized academic ability. In their 1968 study, the authors found that

> Socioeconomic status and intelligence have an equally strong relationship to college plans, but socioeconomic status has a considerably stronger relationship to college plans of females than does intelligence (p. 563-564).

Sewell and Shah's interpretation attributed this differential effect on females and males to family resources. Presumably these "exert stronger influences on the college plans of females than on those of males, while ability exerts stronger influence on the plans of males than on those of females." (p. 564).

The potentiating effect of combining low intelligence, low socioeconomic status, and low parental encouragement became evident from another Sewell and Shah finding:

> While only about one percent of males and females with low intelligence and low parental encouragement from low economic status category planned on college, 88.4 percent of the males and 78.6 percent of the females with high intelligence and high parental encouragement from the high socioeconomic status category planned on college. (p. 570)

In his 1971 article, "Inequality of Opportunity for Higher Education," Sewell summarized his findings regarding the effect of academic ability on educational attainment:

> When we add ability to the model [socioeconomic background], the explained variance in higher educational attainment is increased from eighteen to thirty percent. The additional twelve percent represents a large component of the variance in educational attainment that is completely independent of socioeconomic origins. An important component, varying between twenty and thirty percent of the effects of each of the socioeconomic status variables is mediated by academic ability. At the same time the influence of ability on attainment is clearly not spurious. Only one-fifth of the association of academic ability with educational attainment may be attributed to its association with socioeconomic background. (p. 799)

Sewell did not miss the policy impact of his finding and stated that whether one thinks of measured ability as a valid psychological trait or as an administratively convenient basis for social selection, it seems apparent that the effects of ability on schooling are not merely a reflection of one's SES background. Sewell saw this finding as particularly germane to the current discussions of the social role of testing. (p. 799)

Current literature leaves no doubt that postsecondary institutions have carefully recruited students with high academic ability. Students who are academic risks have little chance of entrance, persistence and achievement. Williams (1968) in a national survey of programs for the disadvantaged students found that academic ability was a criterion used by most colleges:

> Several colleges accept only the financially limited students with outstanding academic records or impressive standardized test scores. While such students may be considered economically disadvantaged, they should not be identified as academic risks. Actually, few institutions are recruiting impoverished ghetto students with serious academic deficiencies. (p. 2)

Summary

Academic ability generally has been measured by high school achievement. Research shows that men are more affected by academic ability than women; that low academic ability exercises its own independent effect, and that low academic ability has a potentiating effect when associated with low SES and low parental encouragement. Students with low high school achievement, that is, those who lack the basic academic skills and competencies are considered academic high risks when seeking admission to postsecondary institutions. Williams (1967), Egerton (1968) and Friedman (1971) converged observant consideration on the academic high risk student. Williams pointed out that most postsecondary institutions admit students who are financially poor, but "few institutions are recruiting impoverished ghetto students with serious academic deficiencies." (p. 2) John Egerton found that Federal government and foundation funds had financed many special efforts to find and prepare able disadvantaged high school students, but there had been almost no support for developing programs in higher education for academic high-risk students. Nathalie Friedman in her report on the Educational Opportunity Grant Program (EOG) provided a summarized profile of the high risk-student.

> . Most have been admitted under special provisions; almost two-thirds come from the bottom half of their high school class and have low SAT or ACT scores. They have usually been in a non-college preparatory curriculum, and have a low college GPA, Over sixty percent are receiving one or more supportive services. (p. 117)

She also reported that three-fourths of all "high-risk" students, compared to one-fourth of the other EOG students stem from minority backgrounds; that two-year schools had an overrepresentation of financially and academically deprived students; that high quality institutions where mean SAT'S may well exceed the 600's, recruit and admit students who have at least a good chance of succeeding in a high quality institution and that "high risk" is actually a relative concept, especially for black students. (pp. 117-130).

Policy Implications

Policy makers can do little about improving the academic intelligence of students at the present stage of genetic engineering. Postsecondary institutions and program directors of compensatory or supportive services, likewise, can do little to increase the basic intelligence of postsecondary age students. In general, intelligence must be classified as a non-policy variable not lending itself to manipulation by policy makers.

Academic ability, however, is another matter involving added skills and habits. Intelligence and academic ability are therefore not equivalent concepts, nevertheless, academic abilities are built and based on native intelligence. Consequently, the acquisition, advancement and accumulation of basic oral and written communication skills, math skills, etc., competencies and study habits conducive to scholarship and industry are manipulable and may be considered policy variables. These manipulable variables will be examined in Proposition VII and VIII.

Proposition VII

POOR STUDY HABITS LIMIT EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE.

This proposition emerges from the literature more as an intuitive, self-evident proposition, rather than an empirically verified positon. Study habits are an intervening variable between intelligence and achievement, affecting grade point average, which in turn is used as a screening device for college admission. After admission, study habits once again are an intervening variable between intelligence, persistence, and graduation. Trent and Medsker, Beyond High School (1968), found that length of time spent in study highly correlated with persistence in college, even when controlling for the fact that most dropouts take fewer courses or work part-time. Table 24 illustrates the point.

TABLE 24. NUMBER OF STUDY HOURS PER WEEK REPORTED BY COLLEGE PERSISTERS AND WITHDRAWALS (PERCENTAGES)

Hours of Study	Men		Women	
	Persisters (N=793)	Withdrawals (N=386)	Persisters (N=620)	Withdrawals (N=504)
9 or fewer	18	36	21	28
10 to 19	38	34	44	34
20 or more	43	14	34	16
no answer	1	16	1	22
Chi square $p < .01$**	(101.49)**		(35.32)**	

Source: Trent and Medsker (1968) p.120

In studying the table we see that of the men, who studied over twenty hours per week, three times more persisted than withdrew (forty-three percent versus fourteen percent); while on the contrary, of those who studied less than ten hours per week, twice as many withdrew than persisted (thirty-six percent versus eighteen percent). Differences in the amount of study hours reported by women (persisting and those withdrawing) were not as great, but the pattern of differences remained the same as that found among men.

Because a somewhat larger proportion of those who withdrew than those who persisted were dependent upon part-time work for support, it was postulated by Trent and Medsker that the number of hours the future withdrawals had to work might have prevented them from being able to study as much as the persisters. But when the number of hours worked was held constant (more than or less than ten hours per week), the differences between the persisters and withdrawals were marked. Of the men who worked less than ten hours a week, thirty-five percent of those who became withdrawals reported studying less than ten hours a week, compared with nineteen percent of the persisters; eighteen percent of the withdrawals who worked less than ten hours reported studying twenty hours or more, compared with forty-five percent of the persisters. Even greater differences in hours spent studying distinguished the two groups of men who worked more than ten hours a week. Once again differences were not as great between the women who persisted and those who withdrew, but the pattern remained the same and continued to be highly significant. (p.120)

Many other variables have not only independent effects, but also operate through study habits--for example, SES, parental encouragement, peer groups, motivation, and physical health. All influence achievement through their impact on study habits.

Parents who are interested in the scholastic achievement of their children encourage the acquisition of good study habits, train their children to schedule their time, and provide a favorable study environment where good study habits are reinforced. Parental encouragement, therefore, operates through this intervening variable.

Motivation, likewise, operates through study habits as an intervening variable. Poor motivation not only makes good study habits difficult to attain but actually rewards the absence of such habits. Peer group influence impinges on achievement at this point. The unorganized demands of a low SES peer group are not only disruptive but also sanction and reward poor study habits. Furthermore, study habits demand assiduity--the simple task of "sitting down at it"--and this involves the body. Therefore, bodily states affect achievement through their impact on study habits. It is difficult to study when ill, hungry, in poor physical condition, or lacking adequate sleep. It would appear that all four systems--the sociocultural, the personality (both cognitive and affective), the biological, and the ecological all operate through study habits as intervening variables on academic achievement.

Policy Implications

Empirical research on the study-habit system of low-achievers is sorely needed because few empirical studies specifically deal with this variable in relation to the disadvantaged. Study habits are acquired and are, therefore, subject to the influence of teachers and all those involved in policy and programs for the disadvantaged. Thus, study habits are classified as a policy variable in any attempt to equalize educational opportunities for the disadvantaged.

Proposition VIII

POOR BASIC SKILLS IN READING, WRITING, AND MATHEMATICS LIMIT EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE.

The consequence or outcome of poor study habits is most evident in the lack of basic academic skills: reading, writing, and mathematics. These deficiencies also define the academic high risk students. The socio-cultural and personality variables previously discussed hindering equality of opportunity dramatically manifest their deleterious influence on the acquisition of basic academic skills. Although blame for academic deficiencies is lodged in various sources little real scholarly investigation has been aimed directly at the causes for and reasons for deficiencies found in basic academic skills. The fact that many financially poor also have poor academic skills appears to be taken as a truism by some and as self-evident by others. This perhaps, explains why so little research has been undertaken specifically in this area. The fact that students lack basic academic skills and competencies has many political and emotional implications. Deficiencies in basic academic skills are most often written off as a problem of finance. The literature is abundant with requests for more financial assistance to remedy basic academic skills. Stress on competencies and accountability has only added more fuel to the fire. The emotionalism attached to the issue of lack of basic academic skills explains in part the dearth of scholarly research on the absence of basic academic skills in many elementary and high school graduates. Numerous authors have described the existing situation.

Moore (1970) described the marginal students as

> . . . deficient in the traditional language arts (reading, writing, listening, spelling, speaking, grammar) and mathematics. The average high-risk student, after more than a decade of experience in the elementary and secondary schools, has not mastered these skills. He cannot read well enough to handle the traditional complexities of college bibliographies. He has not come to terms with the comprehensive and manipulatory skills in mathematics. And he has a blind spot when he is requested to write a theme or term paper. (p. 169)

As early as 1966, Edmund W. Gordon highlighted the lack of basic academic skills resulting from the high school track system:

> When we turn to a concern for disadvantaged populations and the current effort at universalizing access so as to include these students, we have as an additional problem the fact that many students from low-income and minority group populations are diverted from the academic stream as early as third or fourth grades by archaic tracking procedures. (p. 11)

Gordon recognized that the task of making higher education available to disadvantaged students at the tenth, eleventh, or twelfth grade level, was not just a problem of inefficient and inferior academic preparation, but, in some cases, a total lack of "academic preparation."

Gordon adds:

> It is not ususual to find students reading on a fourth or fifth grade level. In trying to make college attendance a meaningful opportunity for many of the students, postsecondary institutions are almost forced to offer a second course in order to bring them to a level where they are ready for the college experience. (p. 11)

Williams (1968) in his national survey found that the primary academic focus of most programs is the development of communication skills, e.g. reading, writing, speaking, and listening. (p. 5).

The lack of basic skills is not a localized problem. In every region across the country the problem is the same. In the East among Higher Education Opportunity Program (HEOP) freshmen in 1972-1973, fifty-seven percent scored under 380 points on their verbal Scholastic Aptitude Test (SAT) and forty-two percent scored under 380 points in the mathematical test (SAT). It is fair to generalize from these statistics that across the nation students are being graduated from high school with aspirations for postsecondary education and are being admitted to higher education lacking the most basic skills: reading, writing, and mathematics. Ferrin (1971) in his survey of Midwestern community colleges found that eighty-four percent had tutorial programs to help in the development or strengthening of basic skills. Roueche (1968) found that the low-achievers in community colleges in the West were severely deficient in basic skills. John Egerton (1968) defined students who lacked basic academic skills as "high risk"; and Moore, _Against the Odds_ (1970), aptly termed the lack of basic skills as the community college dilemma.

> Let me reiterate: the community college faces a dilemma. The dilemma is trying to provide a quality education for both the academically able student and the high risk student. (p. 11)

Kenneth A. Martyn drew attention to the problem of educating students who lack basic academic skills as early as 1966:

> The fact remains that a large portion of students from disadvantaged areas who seek college admissions lack academic, particularly language skills that are necessary for entrance and success in institutions of higher education. (p. 20)

While this problem involving the acquisition of adequate basic skills remains, the "open door" policy becomes Martyn's (1966) "revolving door." The main point to be emphasized is that the lack of basic skills, always in the past an absolute barrier, still is a major obstacle to access, achievement, and persistence, in spite of the open door policy, the availability of compensatory and supportive services. Although much has been said about the deficiencies in basic academic skills, little empirical data is available.

Policy Implications

Many policy matters open to discussion and inquiry come into view on the issue of competencies and basic skills. First, is not the acquisition of these basic academic skills the major challenge to the success of postsecondary programs for the disadvantaged? Second, why have elementary and secondary schools failed in their efforts to teach these skills? Third, how can remedial programs in college succeed where remedial programs in high schools failed? And finally, if disadvantaged high risk populations are to succeed, what special ingredients must be added?

Affective Variables

The quest for non-intellective correlates of college success for college entrants in general and the disadvantaged student in particular, has been discouraging. If enough valid traits could be identified which differentiate students with academic problems from those who are successful, then the identification of successful versus unsuccessful students, with the accompanying prescription of appropriate collegiate experiences would be possible. Katz (1968), reporting on his study of academic motivation, suggested that among low achievers, great self-criticism and less favorable self-evaluation existed and these factors tended to be generalized. Engle, Davis, and Muzer (1968), investigating the influence of peer group acceptance on student behavior, supported the belief that acceptance by a peer model can have a positive effect on the academic performance of underachievers. According to Vaughan, (1968) the dismissed and the withdrawing students have differing personality characteristics--as measured by the Minnesota Multiphasic Personality Inventory (p. 686). Other studies which sought to identify students who are likely to be non-persisters by non-cognitive variables in either a given curriculum or a particular college were conducted by Marks (1967); Chase (1968); Faunce (1967, 1968); Demos (1968); and Panos and Astin (1968). Sanford, Webster, and Friedman (1957) noted that from freshman year to senior year, college women became more tolerant of individual differences, more rebellious, more critical of authority, less conservative, less authoritarian, and freer in impulse expression. Trent and Medsker, Beyond High School (1968), found significant differences in terms of autonomy, intellectual disposition, flexibility, and tolerance, between high school graduates who attended college and those who did not. Differences in expression of satisfaction with their lives were also noted.

Reviewing the literature on dropouts, Cohen and Brawer (1972) found the investigators in academic settings were concerned with differences among personnel, changes in attitudes and values, and in the unique character of individual personality configurations.

Two variables--student's academic self-image and motivation--were chosen for discussion because of their relevance to counseling and teaching. The findings of the assessed literature were abstracted and synthesized into two propositions.

Proposition IX

POOR ACADEMIC SELF-IMAGE LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE MORE THAN LOW SES.

Jaffe and Adams, Academic and Socio-Economic Factors Related to Entrance and Retention at Two- and Four-Year Colleges in the Late 1960's (1970), found that academic self-image was considerably more related to college entrance than any of the socioeconomic variables. (See p. 78 for evaluation of the internal validity of this study.)

> Overall grades in high school and college and the student's self-estimate of his own brightness relative to high school and college classmates are strongly and positively related to all aspects of post-high school behavior: college entrance, type of college entered, and continuation at four-year colleges with the exception of continuation at two-year colleges. The student with poor marks at a two-year college, for example, is about as likely to remain enrolled as a student with good marks. (p. 9)

Grades and self-image variables were far less related to college entrance, however, than was high school curriculum. College-preparatory students were about three and a half times as likely to enter college as non-preparatory students.

Nevertheless,

> Students who think that they are brighter than average in high school are about twice as likely as the pessimists to enter college.
>
> Students with better high school grades are about a third again as likely to enter college as students with poorer grades.
>
> Quite clearly the self-image variable is a stronger determinant of college entrance than grades, and we attribute this finding in large measure to increasing availability of liberal access colleges. (p. 9)

Grades and self-image, according to Jaffe and Adams' findings, had about an equal degree of association with the type of college entered (p. 9). Students who had grades/high self-image and low grades/high self-image were less likely to drop out of college than students with high grades/low self-image and low grades/low self-image. Low self-image accounted for a higher percentage (thirty-seven percent) of dropouts than low grades (thirty-four percent). The dropout rate was further increased to forty percent when these two variables were combined. Table 25 illustrates the point.

TABLE 25. FOUR-YEAR COLLEGE ENTRANTS DROPPING OUT BY 1968 (PERCENTAGES)

Combination Variables Self-Image/Grades	%	Single Variables	%	Single Variables	%
High self-image/ high grades	16%	High self-image	18%	High grades	18%
High self-image/ low grades	24				
Low self-image/ high grades	30				
Low self-image/ low grades	40	Low self-image	37	Low grades	34

Source: Jaffe and Adams, Academic and Socio-economic Factors Related to Entrance and Retention at Two- and Four-Year Colleges in the Late 1960's, 1970, p. 15.

Early decisions and earlier conditioning cannot be ignored when personality factors are involved. Bloom (1969) emphasized the critical importance of the preschool years in the development of cognitive ability. Jensen (1969) announced that compensatory education has failed and argued for the importance of genetic rather than environmental factors in intelligence and scholastic achievement.

Astin, et al., (1973), summarized much of the literature on the question of personality factors:

> Gordon and Wilkerson (1966) maintain that the disadvantaged are less motivated and have lower academic and vocational aspirations than do children of higher SES. This lack of motivation derives in part from a realistic perception of the availability of opportunities, concomitant with a value system that stresses immediate and tangible gratification rather than symbolic rewards.
>
> In addition, Berlin holds that, for low socioeconomic groups, the concept of gratification postponement, as it pertains to conscious deferring process needs modification: and Krauss presents data demonstrating that aspirations are partly a function of attending a middle-class school.
>
> Coleman et al., Equality of Educational Opportunity, (1966) pp. 367-445), report that, of all factors considered, the degree to which a person perceives himself as being able to control his environment correlates with his achievement. Hall found that productive involvement among blacks is related to a sense of powerlessness and inability to control one's destiny, characteristic of persons from lower socioeconomic groups and culturally deprived homes, reduces motivation and leads to unfavorable self-concepts, thereby inhibiting learning potential. (p. 18)

John E. Roueche and R. Wade Kirk, Catching Up: Remedial Education (1973), stated that while there was little research on the self-concept of the community college student, it was generally agreed that non-traditional students were characterized by feelings of powerlessness, worthlessness, alienation, and inappropriate adaptive behaviors--

unrealistic levels of aspiration, lack of problem-solving skills and experiences, hostility, aggressiveness, and often delinquency.

> The low self-concept of community college students derives from comparison of themselves to students in four-year colleges. They typically exhibit less social maturity and autonomy and feel the only way they can equal or surpass their peers is through occupational pursuits of athletic endeavors.
>
> A lack of confidence is also reflected in the mental state of the high risk student, particulary that of the male. (p. 69)

The question not answered by anyone is precisely what talents (cognitive/affective) require what programs to what ends. Criticisms have been launched against the self-concept theory in education of the disadvantaged because of the looseness of the terms and the circulatory nature of the theory: namely, the student internalizes his self-image from his primary group of family, peers, and teachers. This leads to poor learning which confirms the opinion of his primary group, which in turn reinforces his negative self-image, leading to continued poor learning, and so on in a vicious circle. The solution to breaking the circle is also criticized when it involves the teacher adopting the role of the student and perceiving things as he perceives them. It is argued that this theory and solution are too vague and generalized to be the basis of sound academic programs (Washburn, 1971, p. 99).

Theoretically, we do not subscribe to the Washburn criticism of the interaction self-concept theory. Research and practical experience with the disadvantaged have found self-concept to be of primary importance. Admitting the circulatory nature of the theory does not invalidate the theory, because cause and effect are on different orders of causality. It is not, therefore, a "vicious circle" of causality (cause producing effect, effect producing cause). The negative opinion of one's peers, family, and teachers, even if originally class-influenced, creates a negative self-image, which in turn limits output and reinforces social opinion. This is indeed an example of negative feedback not a logical contradiction.

Policy Implications

Positive feedback theory suggests that a double program is required to change a student's negative academic self-image. First a progressive series of tasks must be designed to show the student that he can achieve; and second, parents who have a negative image of their child's academic ability must be kept informed of his/her progress in order that the negative image of the student is gradually replaced. A counter-circulatory movement based on student achievement is thereby instituted. To be successful, however, it is clear that all the components in the circle must be made aware of the student's achievements. Programs which aim at altering the student's self image directly by empathy or role playing alone, lacking a basis in graded achievement, or without modifying his/her primary groups' negative perception, are doomed to failure. A program based on the self-concept theory demands a progressive task development schedule, real achievement, continuous communication with parents and associates, and on-going positive feedback from counselors and teachers.

Proposition X

LOW ACADEMIC MOTIVATION LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS, ACHIEVEMENT, AND PERSISTENCE

Williams (1968) asserts that universities have assumed that high risk students possess intellectual qualities which have not been fully evidenced in their previous academic performance. Scholastic motivation, adequate study skills, and a supportive social environment are factors determining academic success, but these conditions are most frequently missing in the background of most disadvantaged students. To create such conditions and thereby alter achievement patterns should be the primary objective of university compensatory programs.(p. 8)

Prior to the 1950's, the main obstacle to college attendance was viewed by many as financial, and the standard remedy was scholarship aid. Various investigators, such as Berdie (1965) and Little (1960) have found, however, that only a fraction of those regarded as "lost talent" were kept away from college because of a lack of money. Rather, lack of motivation kept many disadvantaged students away. Beezer, et. al. (1963) concluded that the lack of motivation is probably the greatest single deterrent to the college attendance of capable youth (p. 124). Joseph Froomkin (1968) stated that in the lowest income quartile, "about three times (25.8 percent of the high school graduating class) as many children are kept from attending postsecondary institutions by financial and motivational factors jointly as by financial aid alone (7.2 percent) (p. 3)." Ferrin (1970) produced some evidence from various studies to show that a number of factors caused the lack of motivation:

- lack of parental encouragement
- lack of expectations (class)
- lack of aspirations--failure of counselors and teachers to raise aspirations of low-income youth
- lack of high school preparatory curriculum.

We have chosen for evaluation two studies which are pertinent to the issue of motivation.

- Trent, James W., and Leland L. Medsker (1968) Beyond High School
- Coleman, James S., et al: Equality of Educational Opportunity (1966)

Trent and Medsker's longitudinal study, Beyond High School (1968), was designed as a follow-up of the 1959 College Attendance Study. The 1959 sample consisted of ten thousand high school seniors from sixteen communities in the Midwest, California, and Pennsylvania. For comparative purposes the graduating classes of thirty-seven high schools were chosen from communities having different kinds of higher educational institutions.

The northeastern and southern United States were excluded from the survey in the belief that the atypical emphasis on private schools in the Northeast and the racial and socioeconomic problems of the South would distort the overall picture of the availability of different types of colleges and of attendance. The instruments used were Thorndike's twenty-item CAVD verbal intelligence test, a comprehensive student questionnaire, and five attitude scales from the Omnibus Personality Inventory. High school grades were obtained and academic aptitude scores in the students' permanent record were converted to the School and College Ability Test (SCAT) or an equivalent.

Complete follow-up data were gathered from 9,778 of 10,000 graduates who formed the basic 1959 sample, four years after graduation (1963). Complete longitudinal data were obtained from nearly fifty percent of the original sample. Although over seventy percent of those still in college responded, overrepresenting the college group, nevertheless, a comparison of the two samples showed equivalency in regard to personality and background characteristics, thus preserving internal and external validity.

The differences in attitude about the importance of college were remarkable between persisters and non-persisters. When orientation towards persistence and dropout was measured, the authors found that initial orientation was important and positively correlated to actual persistence and later dropouts.

> Forty-three percent of the students who became persisters felt it extremely likely they would graduate from college, compared with eighteen percent of the withdrawals. The differences between the persisters and withdrawals on these variables were consistently significant beyond the one percent level.
>
> More persisting men than women had felt it extremely likely they would graduate from college, but again differences existed between the persisters and withdrawals regardless of sex. Forty-six percent of the persisting men had reported, in 1959, that it was extremely likely they would graduate from college, compared with sixteen percent of the withdrawals; corresponding figures for the women were thirty-nine percent versus

> twenty percent. Again, these differences existed regardless of level of ability or socioeconomic status. (p. 116)

Trent and Medsker also found that motivation as determined by expectation of graduating from college was also related to persistence in college even among students who attained similar grades in high school.

It was found that differences in motivation existed between the college persisters and withdrawals even among those students in the upper thirty percent of the distribution of high school ranks.

> Fifty-eight percent of the men who became persisters, and were at the high level of high school rank, had felt it extremely likely they would graduate from college, compared with thirty-two percent of the withdrawals; corresponding figures for the women were forty-two percent versus twenty-four percent. (p. 117)

Summing up their findings on motivation, Trent and Medsker state:

> Forty-six percent of the persisters saw the main purpose of education as the gaining of knowledge and appreciation of ideas, compared with thirty-one percent of the withdrawals. Forty-two percent of the withdrawals viewed the main purpose of education as vocational training, compared with twenty-eight percent of the persisters. Once again, these differences were significant beyond the one percent level. (p. 117)

Policy Implications

Trent and Medsker have clearly shown that motivation not only is a factor in regard to access but is important for persistence in college. The importance of this variable lies in the fact that it can be manipulated. Much more research, however, is required both in measuring motivation and in identifying successful techniques of strengthening motivation. Edmund W. Gordon (1966) also called for more sophisticated investigations of the differential interaction and impact on persistence or achievement in college of such factors as aspirations, motivation, opportunity and resources.

James Coleman, et al. in Equality of Educational Opportunity examined the relationship of attitude and motivation in relation to achievement. They used three indicators to measure attitudes or motivation of students from grades six, nine, and twelve. These indicators were:

- interest in school and student's reported reading outside school;
- self-concept, specifically with regard to learning;
- sense of control of student's environment.

It was concluded that children's feelings about themselves, their motivations in school, their aspirations toward further education and toward desirable occupations "are partly the result of the home, and partly the result of the school. They play a special role, for they are in part a factor which propels the child toward further education and achievement" (p. 275).

Coleman et al. made a remarkable discovery regarding the motivation of blacks. Blacks in every region of the nation were found to have higher aspirations than whites. They reported wanting to go further than high school, though a slightly smaller proportion of blacks than whites reported wanting to finish college or go beyond. More blacks wanted to go to technical, nursing, or business school after college, than did whites. Among the other groups, the Oriental-Americans showed by far the highest aspirations toward college. Sixty-four percent reported wanting to finish college. Coleman et al. found a critical distinction among blacks between motivation and actual concrete college plans. Relative to college plans, fewer blacks had definite plans not to attend college. Coleman concludes that "This indicates the lesser concreteness in Negroes' aspirations, the greater hopes, but lesser plans" (p. 279). The greater uncertainty in Negro students' plans about college than in those of whites also manifested itself in the lower proportion of blacks who had seen a college catalogue or written to a college (p. 279).

The finding that the highest aspirations for college were among blacks, yet that blacks had the lowest high school completion rate and the lowest college entrance rate, is puzzling. The authors suggested that blacks are especially strongly oriented toward school as a path for mobility.

This finding is consistent with other research that has shown greater aspirations for college among blacks than among whites of comparable economic levels. But the results suggest, as well, a considerable lack of realism in aspirations, especially among blacks whose responses deviated most from actual rates of college attendance and completion of high school.

Blacks and whites showed similar levels of response to Coleman's three questions involving the student's self-concept, though there were variations among regions. Other minorities showed lower self-concept on each of the self-concept questions than did either the black sample or the white sample (p. 281). Only on the third indicator of motivation--the sense of control over one's environment--did the blacks and other minorities measure well below the whites.

Irwin Katz (1968) provided an interesting interpretation of and further insights into the Coleman findings relative to blacks having further aspirations and more learning orientation than whites: that they have an equal academic self-concept and that they have a lower sense of environmental control. Katz suggests that the parents of blacks have inordinately high standards of academic achievement for their children without the requisite knowledge or will to implement these expectations. Children internalize values and goals, but not the behavioral mechanisms requisite for attaining them (p. 63). Even though no models of competency are present, and achievement strivings are not socially reinforced, Katz states that, "Apparently, the typical Negro mother tries to socialize her child for scholastic achievement by laying down verbal rules and regulations about class attendance, classroom conduct, coupled with punishment of detected transgressions" (p. 64). Katz further believes that the parent does not do enough to guide and encourage the child's efforts at verbal-symbolic mastery. "Therefore, the child learns only to verbalize the cognitive basis for negative self-evaluation" (p.64). Katz hypothesized that "when high standards are adopted, but not the behavioral mechanisms necessary for attainment, the relationships between verbal expressions of the standards and actual performance will tend to be an inverse one" (p. 64).

As regards the sense of control of one's environment, Katz points out that this sense of control and academic achievement increased as the child attended a mixed, predominantly white, school. On the other hand his academic self-concept tended to diminish somewhat. Thus Katz concluded that this diminished self-concept was not too detrimental as long as the child's environment rewarded him for his achievements. Katz's interpretation appears to support arguments for school integration. This was an hypothesis, however, explaining the Coleman data and itself needs further testing to establish its validity. Further interpretation will, nevertheless, support the importance of attitude towards achievement. Of all the variables measured in the Coleman survey, including all measures involving family and school, attitudes showed the strongest relation to achievement at the sixth, ninth, and twelfth grade levels. Parental desire for the child's further education had the largest unique contribution to positive self-concept and a sense of control of environment. The school did not have any equivalent effect. In fact, the investigators found hardly any independent impact by the school, as such, on achievement. Coleman and his collaborators took all these results and arrived at one major implication:

> That schools bring little influence to bear on a child's achievement that is independent of his background and general social context; and that this very lack of an independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become inequalities with which they confront adult life at the end of school. For equality of educational opportunity through the schools must imply a strong effect of schools that is independent of the child's immediate social environment, and that strong independent effect is not present in American schools. (p. 325)

Despite some reservations regarding flaws in design and interpretation, the Coleman Report has been widely acclaimed as a monumental piece of educational research.

The entire issue of Harvard Educational Review (Volume 38, 1968) on equalizing educational opportunity discussed the Coleman Report at some length. Likewise, Fredrick Mosteller and Daniel P. Moynihan in On Equality of Educational Opportunity edited the papers originally delivered on the Coleman Report at the Harvard Seminar in 1966-1967. Marshall S. Smith's paper re-analyzed the data in Chapter 3 of the report, using regression analysis, where Coleman used analysis of variance. In spite of statistical reservations, Smith admitted:

> During the five years following the appearance of the Report, no one has seriously questioned the importance of family background for student achievement. Nor has the conclusion reached about the association of student attitudes with student achievement been controversial. (p. 231)

Erick Hanushek and John Kain questioned the Coleman analysis of variance procedure with variables which were intercorrelated, such as background and school factors.

> The analysis of variance procedure used in the Report treats these interaction terms in a very unusual manner. Explanatory variables are entered into the model in a predetermined order and only the increment to explained variance is assigned to each new variable or vector. (p. 125)

Thus, the full interaction effects were attributed to prior variables along with their own independent effects. Glen G. Cain and Harold W. Watts (Rossi and Williams, 1972) in an evaluation of the Report also focused on Chapter 3:

> . . . in which an implicit theory of the determinants of educational achievement is posited, tested, and used to point up prescriptive policy implications. The principal theme of our discussion is that the analytical part of the Coleman Report has such serious methodological shortcomings that it offers little guidance for policy decisions. (p. 74)
>
> Even if the survey data were uncontaminated by any biases from nonresponse errors in measurement, and an "uncontrolled experiment" there remain the following two basic defects in the Coleman analysis.
>
> First, the specification of the theoretical model is inadequate to support the regression analysis used in testing the model. Little or no theoretical justification is offered for the selection of explanatory variables, for their functional form, or for the inclusion or exclusion of variables under different specifications of the model . . .
>
> Second, in those instances where a theoretical justification for the use of a variable in the regression model is clear, the criterion used in the Coleman Report to assess or evaluate the statistical performance of the variable is inappropriate. Instead of providing information about the quantitative effect of a variable in altering educational achievement--information which would enable the reader to assess the feasibility and costliness of operating on the variable--the Report provides information about a statistical measure of the variables performance . . . which gives no clear guidance for translating the statistical findings into policy action. (p. 75)

Cain and Watts emphasized that their criticisms were aimed not at the substantive findings of the Coleman Report nor at its unique importance as a policy document in the field of education.

> The questions we have raised about the statistical and methodological techniques in the Report should be viewed as re-inforcing the challenge to the "educational establishment" to provide evidence on the effectiveness of their programs, especially compensatory programs. (p. 94)

Coleman's reply to his critics emphasized that, first, the extent of knowledge rarely permits full specification of precise functional relationships. For if this were known, a large number of policy questions would already be solved. One must start where he is, and not where he would like to be when he is seeking knowledge.

Coleman further stated that if he were to do a similar study now he would use even simpler statistics. He would give serious consideration to the use of multivariate cross-tabulations (rather than analysis of variance or multiple regression analysis), with an even more open perspective towards theoretical models, in place of much of the multiple regression analysis used.

> For in the early stages of the search for knowledge about processes in a given area, it is important to use relatively open models, in which the peculiar quirks of the data that may be highly informative are not lost. (pp. 98-99)

And in responding to Cain and Watts' criticism that he was not sufficiently conscious of cost-benefit analysis of the variables used, Coleman replied that such a cost-benefit analysis can come at a later stage, and that when it does, many other things must be taken into the estimation, apart from the model's statistical relations. The policy-maker must be aware of the difference in political capital of the dollar spent for school buildings, the dollar spent on teachers' salaries, and the dollar spent for bussing children to integrated schools.

Coleman felt that his difference with Cain and Watts was more a difference on the use of statistics. From his perspective, statistics are but one tool to aid in policy decisions.

Policy Implications

The Coleman Report raised an important policy issue on the impact of schools on equalizing educational opportunities for the disadvantaged. Taking the nation as a whole, Coleman et al. did not find a significant differential impact by school, in regard to blacks or whites. This was and is an extremely political and policy issue. Coleman et al., however, did locate a sociocultural differential which affected motivation. They produced the intriguing finding that blacks are superior to whites with regard to college aspirations and equal to whites in regard to academic self-image. Concrete plans for college entrance, however, were seriously lacking among blacks. The theoretical explanation for this dichotomy between the actual plans and desire is debatable and requires further study. Coleman et al. feel that the dichotomy is bound up with control over one's environment. Trent and Medsker found that motivation is an important ingredient for persistence in college. There is a certain unanimity on the issue of motivation. This critical issue faces all program directors and clearly must be attended to by social scientists involved in policy research. Motivation is undoubtedly a policy variable which can be manipulated. Why is it that this variable so close to the heart of the art of counseling is still so primitively measured and evaluated?

Summary Regarding Personality Variables

We chose the student's academic self-image and the student's motivation as the two key variables pertaining to the affective or non-cognitive side of his personality as most relevant to the needs of the disadvantaged student and program directors. More scholarly inquiry is needed on both of these critical policy variables. Likewise, academic ability, poor study habits, and lack of basic academic skills, extremely important policy variables, have yet to be adequately researched as they relate to postsecondary education and specifically to the disadvantaged population. Figure 10 illustrates the network of major personality variables studied in this section.

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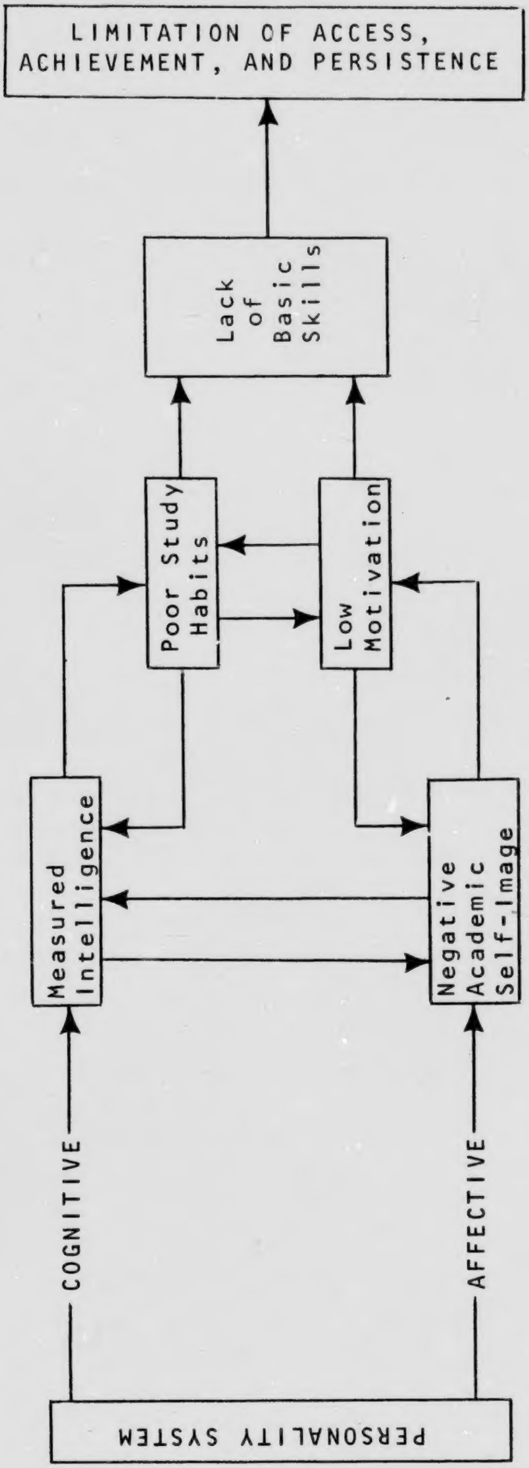
LIMITATION OF ACCESS, ACHIEVEMENT, AND PERSISTENCE
Lack of Basic Skills
Poor Study Habits
Low Motivation
Measured Intelligence
Negative Academic Self-Image
COGNITIVE
AFFECTIVE
PERSONALITY SYSTEM

FIGURE 10.

NETWORK OF MAJOR PERSONALITY VARIABLES LIMITING ACCESS, ACHIEVEMENT, AND PERSISTENCE

Ecological Variables

Thus far the focus has been on sociocultural and personality variables which, according to the research literature, limit the student's postsecondary access and persistence. The analysis undertaken in the next proposition takes a different but complementary tack of focusing on the availability of educational resources, rather than the outcome of the admissions process. The general question is--how locally accessible is higher education? More, specifically, who are the students living within commuting distance of a postsecondary institutions? And how many are there? Or stated another way: does accessibility influence access? While the literature is controversial on this subject, we feel the weight of research suggests that proximity is an important policy variable affecting access.

Proposition XI

PHYSICAL AND PSYCHOLOGICAL DISTANCE FROM A POSTSECONDARY INSTITUTION LIMITS EQUALITY OF OPPORTUNITY FOR ACCESS.

The first extensive study of the importance of proximity was conducted by Leonard V. Koos in 1940-1941 when he investigated fifty-seven communities and 11,932 high school graduates through out the Midwest, South, and Far West. He found an inverse ratio of college distance and college attendance. Communities with no higher educational institution nearby had only seventeen percent of high school graduates attending college, while those communities with public junior colleges had the highest percentage (forty-eight percent). Koos concluded that public low-tuition junior colleges greatly affected access of low socioeconomic background students. In communities without public junior colleges only eleven percent of low socioeconomic students attended; whereas, in communities with such institutions, thirty-nine percent attended. Koos further showed that forty-four percent of high school graduates entered a junior college when it was in their home town, as compared with less than thirteen percent when the college was seven to fifteen miles away. The author became the champion of local public junior colleges to meet local community needs as against centrally located regional and state junior colleges which would be geared to meet the needs of a larger geographical area.

Baird, et al. (1969), produced data showing that among junior college students, the majority of whom commute to college, over seventy percent spent less than thirty minutes commuting to and from the campus and almost three out of five said they lived within three to five miles. This confirmed the earlier studies by Willis (1958) who found that sixty percent of all students attending Chicago City Junior College lived within two and one-half miles of the particular branch they attended. Ferrin (1970) showed the guidelines various states use for reasonable commuting radius. A ten mile radius is most frequently recommended. Willingham (1970), reviewing the accessibility of postsecondary education, concluded that expansion of educational opportunity necessarily involves the establishment of low-cost community institutions. The importance of the availability of appropriate local institutions is emphasized by most of the researchers in the area of accessibility, except by Anderson, et al. (1972). We have chosen to evaluate Free Access Higher Education by Warren W. Willingham (1970) and Where Colleges Are and Who Attends by C. Arnold Anderson, et al.

Willingham believes that proximity has become a key element in the accessibility of higher education for several reasons. The first is that a nearby college is more likely to prove an attraction to a marginal student because of its intangible identity to him, its familiarity, and its relevance to his interests. The second reason is that students can live at home, work part-time, and attend classes under circumstances that only commuting status permits. Willingham was well aware that his "explanations" were really assumptions, assuming first of all that a correlation exists between accessibility and opportunity. He wrote:

> While the direct evidence supporting these assumptions may be sparse, there are several convincing studies which indicate that the existence of a non-selective inexpensive college does increase the rate of college attendance in the surrounding area. Earlier works by Koos (1944) and much more recent research by Bashaw (1965) indicate that a local community college approximately doubles the college attendance rate of local high school graduates. Recent works of Trent and Medsker (1965) confirm this result. (p. 10)

However, it is clear that correlation does not establish causation. Willingham bemoans the poverty of research on the relationship between accessibility and opportunity:

> The whole matter of the relationship between college location and equal opportunity is so critical that it is discouraging that so little basic research has been put into the question.
> (p. 10)

Willingham's was the first national descriptive study of accessibility and proximity in relation to free access colleges. He pointed out that the concepts "accessibility" and "proximity" are not the same in referring to an institution. Accessibility was defined as the joint effect of cost and selectivity (p. 13). Cost was narrowly defined as tuition and fees for a local resident during the 1968-1969 academic year, as reported by the institutions in standard references. Willingham set up a five point scale for selectivity, using place in high school class as his indicator. (Table 26.). Willingham concluded that the geographical guidelines used by state planners with respect to commuting distance reflect what is possible with respect to commuting distance, not the close proximity that is really likely to encourage students to attend (p. 17). The author than summarized some recent survey data on proximity:

. 70% of junior college students live within 10 miles of their college;

TABLE 26. SELECTIVITY BASED ON HIGH SCHOOL RANK

Selectivity Score	Percent in Top Half of High School Class	Admissions Policy
Open Door	0-49	Accepts all high school graduates
Nonselective	50-69	Accepts top 75%; C average
Selective	70-84	Accepts top 50%; C+ average
Very Selective	85-94	Accepts top third; B average
Most Selective	95+	Very competitive

Source: Willingham, Free-Access Higher Education, p. 14.

TABLE 27. PERCENTAGES OF COLLEGES THAT ARE FREE-ACCESS IN DIFFERENT TYPES OF COMMUNITIES

Type of Community	Percent Free-Access	Total Number Colleges
Metro Areas (more than one million)		
Central City	15	402
Fringe	29	337
Metro Areas (500,000 to million)	20	259
Metro Areas (500,000 to 50,000)	30	507
Other Counties (not SMSA)	39	1,091

Source: Willingham, Free-Access Higher Education, p. 27.

- 70% of junior college students are within 30 minutes commuting time of their institutions;
- 60% of all students in Chicago City junior colleges lived within 2.5 miles of the college.

An interesting finding governed the accessibility to free-access colleges according to community size. There was a progressive increase in the likelihood that a college will be free-access as one moved away from highly populated to less populated areas. Suburban colleges were almost twice as likely to be free-access, despite the central city colleges' location (Table 27). Willingham concluded that on an absolute basis there can be no question concerning the inaccessibility of higher education in most major cities. There were six metropolitan areas in the country with populations larger than one million which had no free-access institutions in their central city in 1968 (p. 28).

From the point of view of policy, Willingham raised questions and provided guidelines. For example, how many new free-access colleges would be required to accommodate people within commuting distance. Willingham estimated that roughly 375 additional colleges in optimum locations would put two-thirds of the population of most states near an accessible college. Table 28 illustrates the estimate of additional colleges required.

Table 28. ESTIMATE OF ADDITIONAL COLLEGES REQUIRED TO PUT SPECIFIED PERCENTAGES OF THE POPULATION WITHIN COMMUTING DISTANCE OF A FREE-ACCESS COLLEGE

Region	Present Free-Access Colleges	Additional Free-Access Colleges Required to Accommodate Percentage of Population				
		50%	60%	70%	80%	90%
Northeast	92	20	14	21	32	56
Midwest	193	56	41	43	80	138
South	312	20	33	65	103	153
West	192	16	13	45	37	63
National Total	789	112	101	174	252	410

Source: Willingham, _Free-Access Higher Education_, p. 37.

Internal and External Validity

The Willingham study is important in drawing the attention of state planners to the importance of location. The assumption, however, that location has an impact on access was not empirically established in the study.

The specific assumption that a "commuting distance of 45 minutes" is in fact an "effective commuting distance" was not tested. Had the distance been shortened the conclusion that two-fifths of the American population are within commuting distance might not hold. By exaggerating a viable commuting distance, however, we can accept that the case is not any better than the results indicated.

The forty-five minute ratio of commuting distance to total community population is not the best index for attaining a picture of the disadvantaged--which was the aim of the study. Perhaps it would have been better to have worked with a given cohort from which freshmen are generally drawn--the 18 to 24 year-olds--and their distribution according to family income and proximity. Likewise, in estimating how many new free-access colleges would be required, the stipulation of one college for every 25,000 persons was also an arbitrary decision.

Working within the parameters of operational definitions proposed by Willingham for "accessibility," "selectivity," "proximity," and "free-access colleges," this study is an internally valid descriptive study.

The basic assumptions of the study were critical; nevertheless, they were not verified within the study itself.

States and regions for 1968 were considered, providing the only national study of its kind. The question of conformity with other studies did not arise. The only question regarding the generalizations from the State and Regional findings would refer to the universality of the application of his definitions noted in internal validity. There was a great deal of arbitrariness in determination of his definitions. Ferrin's 1971 replication of this study for 1958 failed to strengthen external validity because of identical definitions and assumptions. Definitions are not true or false; they are useful or not useful. Willingham's definitions have a certain degree of usefulness. The degree, however, is hard to estimate because of the biased assumptions noted above, and the lack of scientific research on the true effects of "proximity."

Where Colleges Are and Who Attends (1972)

Arnold Anderson, et al. (1972) aimed to find out whether the construction of colleges in certain places would bring about a rise in college attendance rates. Specifically, among the many factors that influence college attendance, how important is geographical accessibility? To answer this question they did not gather original data, but the authors utilized for re-analysis several sets of data. One set was the data on Wisconsin high school graduates gathered in 1957 by J. Kenneth Little and the follow-up by William H. Sewell in 1964. The second source of their data was the SCOPE study (School to College: Opportunities for Post-Secondary Education), collected from four states: California, New York, Illinois, and North Carolina for the year 1966. The authors used the data for seniors only.

Project SCOPE, sponsored by the Center for Research and Development in Higher Education of the University of California at Berkeley and by the College Entrance Examination Board, followed the educational and occupational careers of nearly ninety thousand ninth and twelfth graders in the four states mentioned above. A multi-stage, stratified, and proportional random sampling of high schools was designed to obtain about four thousand students for each grade, sex, and state, allowing for probable rates of nonresponse. In each state the counties were clustered by median family income, percentage of white collar workers, racial composition, mobility of the population, level of school attendance, size of school, previous proportions of graduates who went to college. For each cluster of counties, school districts were chosen randomly. In three states metropolitan districts refused to cooperate and thus no conclusions on proximity were drawn regarding metropolitan areas. This, in our judgment, greatly weakened the findings of the study.

Furthermore, it may be questioned as to whether or not California, New York, Illinois, and Wisconsin are typical of the United States. This fact militates against the external validity of the study. The population sample taken from 1957, 1964, and 1966, prior to the increased federal intervention in the field of higher education with its emphasis on equality of opportunity, makes any generalization to the present open to question.

Cross-tabulation and multivariate regression were used, especially with the Wisconsin study. College attendance was the dependent variable. The two basic groups compared were communities with a college present and communities without a college. The design was controlled for SES, sex, ability, college type, and college curriculum followed. The conclusions of the analysis "cast doubt in a major degree on any hypothesis that location of a college by itself has substantial effects upon college attendance" (p. 85). Anderson, et al. pointed out that the conclusion was a general one, but it did not clarify the effect of location on specific social or ability categories.

The effect of location on the disadvantaged populations is our chief concern and some of Anderson's conclusions relative to this target population are of interest:

- There is a negligible effect of college accessibility among the least able boys for almost every variety of college profile. (p. 90)

- The presence of private four-year colleges seemingly affected boys more than girls, but only in the upper reaches of the SES scale. (p. 92)

- Residence in a community possessing a university Extension Center (but no other postsecondary school) apparently induced few girls to continue into college, but boys from homes with low SES standing or whose fathers were less educated were markedly more likely to attend college if they resided in these communities. (p. 92)

- Within each ability category and for each sex, the regression coefficients on characteristics of family and school are insensitive to inclusion or exclusion of dummy sets on college accessibility. This finding is in line with what was observed earlier in the total sample. (p. 94)

- Few youths who were of low ability attended college in any case, and for high school graduates in the lowest quarter of ability the local presence of a college made very little difference. It does seem to have had some effect among youth of higher ability, especially among boys in the upper half of the ability scale. (p. 86)

- No matter what else is considered, the ability of high school graduates and the status of their parents have strong effects upon the likelihood that they will go on to college institutions. (p. 147)

- It is clear that information concerning college-accessibility profiles has little overall explanatory power. (p. 147)

- Among youth in the lowest quarter of ability, college-access type had little or no effect upon attendance rates, except for girls going to teachers colleges. (p. 148)
- Residence near Extension Centers seems clearly to have had a net positive effect on college going among boys in the lowest status categories generally, and especially among the more able boys from middle-status homes. (p. 149)
- Overall, it is the young men in the middle half of the ability range and the young women in the top quarter of ability who appear to have been the most responsive--when there was a response-- to the presence of a college in the community (teachers colleges excepted). (p. 149)
- Our simplest conclusion, in brief, is that spatial accessibility to one or more colleges has little effect for most youth, on whether they will attend college--be the accessible school a junior college, an open door four-year college, or a more selective college. (p. 267)
- Putting all this another way, and more harshly, the much-desired expansion of attendance by able youth from low-status families cannot dependably be increased through the implanting of colleges closer at hand. (p. 238)

Evaluation

This study was not based upon a national sample but upon data already collected for another purpose by SCOPE and the Wisconsin study. The general conclusion--that the presence of a college as such will not necessarily increase attendance--was deduced from behavioral patterns for the years 1956, 1964, and 1966. These data cover actual behavior when massive federal programs were not effectively communicated to high school youth and not as readily available to low-income youth as they were by 1972, when the report was published.

It would be unwise for States to change or reject the policy of a system of local community colleges as distinct from large central, regional two-year colleges on the basis of Anderson's findings. Free-access community colleges clearly offer an opportunity to the students who are disadvantaged--both from the point of cost and the location of the student's home; they also offer the student the opportunity to work while attending college. The location of new public state colleges is undoubtedly a policy variable. As one of the more important variables, it calls for more profound research on a national scale rather than a re-analysis of data that pre-dates massive federal funding for compensatory education efforts on both the pre-college and college level. Anderson's findings, however, are not consistent with existing data or analysis of data; thus his findings are questionable.

While we admit that mere spatial proximity is not a sufficient cause of college attendance, this study does not invalidate the findings in a California study that it does make a difference once the "perception" of the college is altered. Once motivation replaces lack of interest through organized recruitment, proximity would appear to be a facilitating factor for low socioeconomic students.

In other words, the study and findings are not accepted as valid, and must be carefully interpreted from the point of view of policy decisions on the location of a statewide network of colleges. The study has little external validity.

The Policy Relevance of Basic Research on Variables that Limit College Entrance, Achievement and Persistence

In this study we continually distinguished between policy variables and non-policy or situational variables. This distinction is important for research which seeks to describe correlations and causes with a view to making policy recommendations, This distinction is even more critical for policy which seeks action. It is clearly not useful to recommend to the policy-maker a solution that involves changing a variable if, in reality, that variable is not within his power to change. This is the dilemma that faces the policy researcher. It is not sufficient for research to locate causal factors alone, for many may well be non-policy variables. He must also identify the mechanisms through which such variables work out their effect and which may indeed be manipulable. Thus, indirectly, the effects of a non-policy variable may be counteracted without attempting to change the variables themselves.

We conclude this section on basic policy research by identifying which of the selected variables studied would be classified as policy variables (PV) and which as situational or non-policy variables (NPV). Figure 11 further illustrates selected variables through which the non-policy variables operate to produce their effect. A major need in this field of policy research is to identify in-depth and scientifically all the possible intervening mechanisms through which these variables operate. Figure 11 is intended merely as an illustration.

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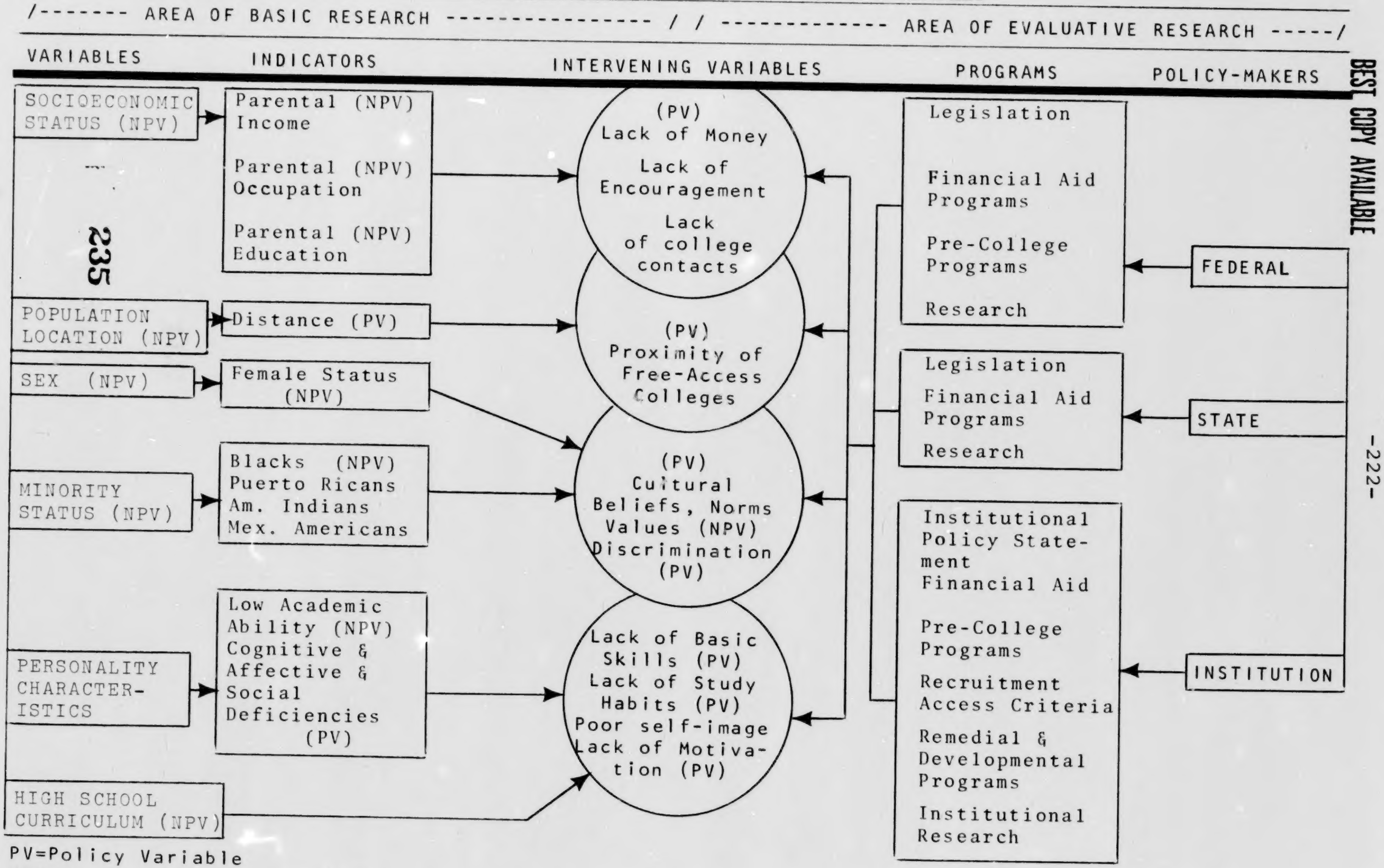
FIGURE 11. POLICY AND NON-POLICY VARIABLES


/------- AREA OF BASIC RESEARCH --------------- / / ------------- AREA OF EVALUATIVE RESEARCH -----/
VARIABLES
INDICATORS
INTERVENING VARIABLES
PROGRAMS
POLICY-MAKERS
SOCIOECONOMIC STATUS (NPV)
Parental (NPV) Income
Parental (NPV) Occupation
Parental (NPV) Education
POPULATION LOCATION (NPV)
Distance (PV)
SEX (NPV)
Female Status (NPV)
MINORITY STATUS (NPV)
Blacks (NPV) Puerto Ricans Am. Indians Mex. Americans
PERSONALITY CHARACTER-ISTICS
Low Academic Ability (NPV) Cognitive & Affective & Social Deficiencies (PV)
HIGH SCHOOL CURRICULUM (NPV)
(PV) Lack of Money
Lack of Encouragement
Lack of college contacts
(PV) Proximity of Free-Access Colleges
(PV) Cultural Beliefs, Norms Values (NPV) Discrimination (PV)
Lack of Basic Skills (PV)
Lack of Study Habits (PV)
Poor self-image
Lack of Motiva-tion (PV)
Legislation
Financial Aid Programs
Pre-College Programs
Research
Legislation
Financial Aid Programs
Research
Institutional Policy State-ment
Financial Aid
Pre-College Programs
Recruitment Access Criteria
Remedial & Developmental Programs
Institutional Research
FEDERAL
STATE
INSTITUTION

PV=Policy Variable
NPV= Non-Policy Variable=Situational Variable

Implications

Basic research has performed a number of important functions to date: the identification and description of the major variables involved in the making of a disadvantaged student and greater insight into the problems facing remediation. Through basic research the following major variables which correlate with or are causal factors of the disadvantaged have been identified:

- Parents' low socioeconomic status
- Lack of parental encouragement
- Minority and/or sex discrimination
- Non-college preparatory track of high school curriculum
- Low ability or intelligence
- Lack of motivation
- Poor academic self-image
- Lack of study skills and basic academic skills
- Distance from postsecondary education

The influence of peer group has not been thoroughly researched.

The first policy question arising regarding these variables is: are they manipulable by policy-makers? Most of the variables studied by basic researchers were policy variables. Therefore, the correlation between variables and the possibility of manipulating them were examined. Socioeconomic status, the most studied variable, is situational not a policy variable. Neither the political nor the American value system would allow a socialism aimed at eliminating social stratification. Lack of parental encouragement is to some degree amenable to outside influence. To alter the present high school track system would demand a major shift within the school structure. The total reorganization of that massive institution is hardly a feasible consideration at present--consequently we must regard this as a non-policy variable.

Lack of motivation is a personality variable. The challenge posed by motivation is directly borne by the counselor using socio-psychological techniques. As long as motivation is amenable to change by outside elements, it is certainly a variable manipulable by the practitioner. The question for the policy-maker becomes one of simply funding given counseling programs.

Intelligence is not a policy variable. In dealing with the disadvantaged student, it would be foolish to attempt to increase a student's I.Q. directly. Intelligence would rather seem to be a condition which must be taken into account in program application. Poor academic self-image and lack of proper study habits and academic skills pose the major challenge to counseling and remedial programs. These personality characteristics are definitely amenable to intervention.

Although a non-policy variable, minority status of disadvantaged populations can be counteracted by negative legislation prohibiting discrimination. It can also be counteracted by positive efforts at recruitment. Positive action may to some extent overcome discriminatory practices, such as institutionalized racism and sexism.

From our overview of past basic research, new areas for further research clearly emerged from the point of view of the policy-maker, which we shall call the area of _intermediary mechanisms_. If many of the variables studied are in fact non-policy variables, the question then arises, through what intermediary mechanisms do all these variables operate to produce the disadvantaged student? Taking each variable in turn, we will illustrate new areas for policy research.

Low Socioeconomic Status (non-policy variable)

The question is, what are the intermediary mechanisms through which low SES operates to block access to postsecondary education? Lack of sufficient money is one explanation. Money is indeed the most highly manipulable of all variables by the legislators. Consequently, federal efforts to equalize educational opportunities focused on this manipulable variable--money, through financial aid, GI Bill, Work-Study Programs, EOG programs, and so forth. However, universal availability of money will not guarantee universal access. Socioeconomic variables do not simply operate through the lack of money; they constitute a way of life which works through many channels to prevent access, retention, and achievement in postsecondary education. The identification of these other SES intermediary mechanisms is a critical challenge to basic research. Unfortunately little policy research exists clarifying the mechanisms through which the low family SES operates or fails to operate in the making of decisions relative to postsecondary education for their children. Basic research on these mechanisms is still needed. Comparative studies need to be made between families on the same socioeconomic level who do more than verbalize educational aspirations. Likewise, comparative studies of various socioeconomic levels are needed to isolate differences and similarities. What behavorial mechanisms are used by parents who are successful in motivating and affecting college entrance, achievement, and persistence which the low income parents fail to employ? What mechanisms do lower socioeconomic status groups use to reinforce values and actions which are counterproductive? The following list drawn from reading and reflection suggests areas for research hypotheses on the mechanisms through which socioeconomic status operates. We believe that the intermediary mechanisms are the most unexplored and presently the most challenging area for further investigation of the effects of SES on postsecondary education--access, persistence, and achievement. When research identifies each of the mechanisms or channels, then appropriate countermeasures based on empirical knowledge rather than guesswork can be instituted.

Figure 12.

Hypotheses on the Mechanisms through which Low Socioeconomic Status Families Operate to Limit Access, Achievement, and Persistence.

Low SES	Intermediary Mechanisms
Beliefs	That the world cannot be changed or one's environment controlled. That luck or chance, as opposed to planning, is the major force for change. That education is not for women.

Educational Values	Unrealistic aspirations of occupational attainment, professional attainment, and educational attainment.
	Orientation towards the present rather than the future. (Education not viewed as deferred value.)
	Education regarded as training and not end in itself.
Negative Reinforcement	Sanction of failures; few rewards for educational efforts and achievements.
	Stress on rewards with tangible gratification rather than symbolic rewards.
	Absence of follow-up of student's educational progress.
	Lack of opportunity for decision-making and discussion of issues involved--with consequent lack of development of verbal powers.
	Rewards for traits and skills unrelated to academic skills, such as sports.
Negative Socialization	Lack of intellectual interaction with peers.
	Lack of parental assistance in scheduling study time and providing study environment.
	Lack of assistance in acquiring good study habits, attention, assiduity, and use of library.
	Lack of assistance in acquiring basic skills of reading, writing, and math.
	No provision for cultural and intellectual experiences.
	No encouragement in intellectual pursuits, intellectual competition, and stimulation.
Income	Lack of habits of budgeting, saving, spending money on deferred values.
	Little money available for educational experiences.

Educational Environment	Absence of appropriate books in the home. Absence of educational games, toys, and other equipment. Disorganized home schedule. Overcrowded home conditions. Lack of visual stimuli and auditory discriminative training. Lack of study environment; distractions and noise interfere with studying. Use of kitchen for socializing and studying.
Parental Education	Lack of reading habits. Lack of abstract thinking, discussion of ideas, and intellectual stimulation. Lack of symbolic tools for communication. Parochial view of reality and life. Lack of knowledge of federal, state, and local financial aid opportunities.
Occupational Limitations	Lack of personal experience with post-secondary educational system and its requirements and expectations. Lack of personal contacts with co-workers sharing an educational value system. Absence of "buddy" system influence in educational system. Little awareness of deadlines, eligibility regulations, and specifics of

Occupational Limitations (continued)	educational system for application and admission. Lack of friends and associates with an awareness of higher educational attainments to consult with or seek advice or emulation.

Lack of Parental Encouragement

Lack of parental encouragement is itself one of the intervening variables through which socioeconomic status exerts its influence. It is subject, however, to direct manipulation through planned propaganda, radio, television, the press, organized discussion, and so forth. It can, therefore, be classified as a policy variable.

Encouragement stresses the student's real strengths and abilities. Guidance for success is given where failure is apt to be encountered. Parents with limited educational backgrounds rarely judge accurately the intellectual strengths of their postsecondary-age children to lead them to their full potential. Parents who have never taken steps to attend college or to achieve in postsecondary education are not able to transmit this experience to their sons and daughters. Encouragement is especially based on the understanding of the reasons of failure, and threat of failure can be overcome piecemeal as consecutive developmental tasks are performed and developmental skills achieved.

Little knowledge about the steps in intellectual growth is another drawback among low-income parents. Academic achievements at various levels are not sufficiently rewarded; failure too often is immediately censured. Much more research is needed on the comparison of the mechanisms, methods, and techniques of encouragement utilized by those parents who successully motivate their children to achieve in academic institutions. More specifically, research on the timing, degree, and kind of encouragement which promotes academic achievement from parents of secondary students is critical. The relationship of encouragement to positive self-image has been affirmed by many authors and this, too, needs further research.

A major research and program development policy question arises, however, about the wisdom of attempting to increase low parental encouragement on postsecondary levels. How much power of persuasion do parents have at this stage of a youth's development--especially in cases where parents have produced artificially high and unrealistic aspirations. Perhaps low parental encouragement is a variable to be tackled at a much earlier stage--the primary and early secondary levels--before a tracking decision is made. Is it possible to have surrogates for parental encouragement? Can counselors and teachers on the postsecondary level directly aim their efforts at encouraging achievement and completion? It might be more fruitful and productive for counselors and college instructors to put their time and energy into more direct efforts than to attempt to alter the pattern of parental encouragement. This certainly may be an alternative to parental encouragement of low achievers.

Minority and Racial Status (non-policy variable)

Minority and racial status are not policy variables in the sense that such variables are manipulable. Minority status is a cultural phenomenon while racial composition is a biological phenomenon. The educational attainment of American Orientals and the Jewish people would seem to indicate that it is not ethnic or minority status itself which is the limiting factor; but, generalizations cannot be made on the basis of two ethnic groups.

Research does not show clearly what, if any, ethnic mechanisms limit entrance, achievement, and persistence; what, if any, norms or values and organizations of the group thwart the acquisition of postsecondary education. Quality research is sorely needed on the educational-belief systems, educational-value systems, and educational-family patterns of minority groups. Existing assumptions about lack of money and discrimination as barriers to access need to be tested by more valid research. Programs designed for special ethnic and racial groups need more solid, empirical foundations. Is the assumption valid that minority personnel understand their own better and are preferred teachers and counselors? Are the assumptions of many institutional programs true that only those of minority status are adequately equipped by personal experience and ethnic identity to effectively and efficiently assist minorities in overcoming their basic deficiences and academic handicaps? Is experiential knowledge alone sufficient, without any empirical or scientific foundation to back up the limitations of experience? It is a far easier policy question to tackle the discrimination barriers through legal means than to identify and remove internal ethnic and cultural barriers.

Curriculum (policy variable)

Students who have matriculated through a non-academic track on their secondary level and then have chosen to attend a postsecondary institution requiring basic academic skills find themselves shortchanged. The secondary curriculum followed by students is not a policy variable, once the curriculum is completed. It is already a fact of history. Further, the competencies necessary for success in an academic institution often cannot be acquired within a summer or a semester program. Collegiate compensatory programs are necessary, frequently because the student has received poor academic counseling. A program, aimed, however, at encouraging secondary education teachers and counselors to be more cautious in their advising of tracks for students is critical. The decision to follow a college preparatory curriculum or a general curriculum has far-reaching consequences and cannot be made lightly. Secondary students often lack the maturity to make such consequential decisions. Disadvantaged youth receive little help at home in making this important decision. Should the track system be abolished for a more general basic curriculum? This is a major policy question. At present, however, an alternative policy of better counselling would practically solve the disastrous consequences of electing a vocational-technical track and later deciding one wants to enter a postsecondary academic school. The tracking system which may have well served a society requiring universal secondary education may not be suitable to a society fast moving toward universal postsecondary education.

Poor Academic Self-Image (policy variable)

Research has clearly established that a poor academic self-image is detrimental to postsecondary access, achievement, and persistence. It would appear self-evident that counselors in postsecondary institutions would seek to overcome this barrier through the development of a positive self-image and self-confidence. It is important to note the Jaffe and Adams' (1968) finding that a negative self-image was created or reinforced by one's peers. False encouragement will not remove a negative self-image which has developed over years of schooling and is based upon two solid empirical referents--the opinions of the significant others in one's environment and the evidence of past failures in comparison with one's peers.

The hypothesis advanced in this report is that the counselor should shift the emphasis of a student's self-evaluation from peer comparison to competency comparison. This, we feel, is an area of comparative testing which needs further investigation. In this approach, an alternative empirical referent is established--one within the ability of the student to reach. The student possessing a poor self-image is given the opportunity and assistance to pass through a series of individual accomplishments and task performances within his present capacity--that is, he goes from one success to another. The assumption is that as one failure leads to another, so too, one success leads to the next. This assumption upon which individualized program learning is based, needs to be scientifically tested. The negative academic self-image of a student would in this approach be attacked indirectly and through empirical evidence of academic achievement and not through empty praise or flattery. This circular causative process of poor academic self-evaluation would be broken--not at its toughest point, peer comparison, but at its weakest point--task accomplishment or competency achievement in relation to one's present development.

Basic Deficiencies (policy variables)

Basic skills can be taught and learned; consequently, from the point of view of the educational institution, lack of basic skills is a policy variable. Compensatory programs on the postsecondary level are generally aimed at the improvement of basic academic skills. As we shall see in our discussion of program evaluation, however, there have been serious deficiencies in the evaluation of such remedial programs. There is little theoretical or policy justification for measuring programs aimed at skill development by persistence in the program or in the academic institution, or by the grade point average attained in the course, or combined courses. With the current open curricula, emphasis on relevance rather than academic content and knowledge, and large numbers of students with major academic skill deficiencies in regular academic classes, all have contributed to somewhat lower expectations of postsecondary students by teachers and institutions. Is it not possible for students lacking basic skills to graduate from college in the same manner that they had graduated from high school? The high school diploma was an indication that students had gained competencies on an acceptable level!

Apart from the evaluation problem, a further policy question arose. Why should students be expected to gain in one semester or two what they failed to achieve in basic skill competencies in twelve years of schooling? Why is there the expectation that postsecondary institutions can succeed where primary and secondary institutions have failed?

According to Moore (1970):

> Many students have feelings of resentment because they have been placed in a remedial program. This antagonism is expressed in a variety of ways. Some students challenge the material being used in the course as being too much like high school; some vent anger against teachers by complaining about the instructor's lack of skill in teaching (lectures too fast, tone and manner are condescending, and attitude implies that the student is stupid); other students boycott classes or refuse to participate in classes even if they are present. Remedial students will often talk to counselors about these things; rarely will they talk to others.
>
> Educationally disadvantaged students often feel inadequate, inferior, and uncertain in various courses. Mathematics, for example, seems to frighten them. It is common for many marginal students to drop science courses at the first indication that mathematics is needed in the course. Research shows that mathematics (Blanton, 1964) and English (Bossone, 1966) are the two subject-matter areas where marginal students seem most uncertain. Consequently,

> students who can hold their own in courses which allow them to participate verbally frequently ridicule the mathematics they must take as being too elementary and irrelevant. The English they are required to take is considered equally irrelevant. Convincing the student of the worth of the courses is another knotty problem for the counselor (pp-100).

A third policy question concerns the assumption that students lacking basic skills must be admitted to college. The assumption has not been empirically verified and looms as a major controversial issue. Should not academic tasks be achieved at their proper stage? Should not primary and secondary institutions be held accountable for their failure? Should not the cure be applied to the location and cause of the problem as well as to its effects? This major policy question, however, is posed not as an either/or proposition, but rather as a both/and proposition.

Poor Motivation (policy variable)

Increasing motivation would seem to be a policy variable for institutions and governmental agencies. Many counseling services have directly taken up the challenge of motivation. The major unsolved problem with motivation is how to measure successful motivation. Upward Bound, as we shall see, took access to college as evidence of motivational success. Other programs have taken persistence as a measure of successful motivation. This problem will be discussed at greater length in the following section of this report.

We advocate the position that program and project evaluation should avoid evaluation by objectives which are remote to the program and affected by many uncontrolled factors. The implication regarding policy on the question of motivation, like that of remedial programs, is two-fold: how is success to be measured? and what programs should be supported and what suppressed? Both questions are interlocked and directly affect policy-making decisions. Certain other assumptions must also be investigated. Is minority identity an important factor in counseling personnel. Roueche and Kirk (1973) assumed that only faculty volunteers should ever participate in remedial programs. Understanding and willingness to work with students lacking college-level skills appeared to be more important characteristics than minority status. These assumptions ought to be tested if Moore's assertion is true that, "There is mounting evidence that in the community college the counselor is the pivotal staff member in the remedial program" (p. 86).

Location (policy variable)

The location of new colleges--especially of community colleges--is clearly a policy variable. Many states are now

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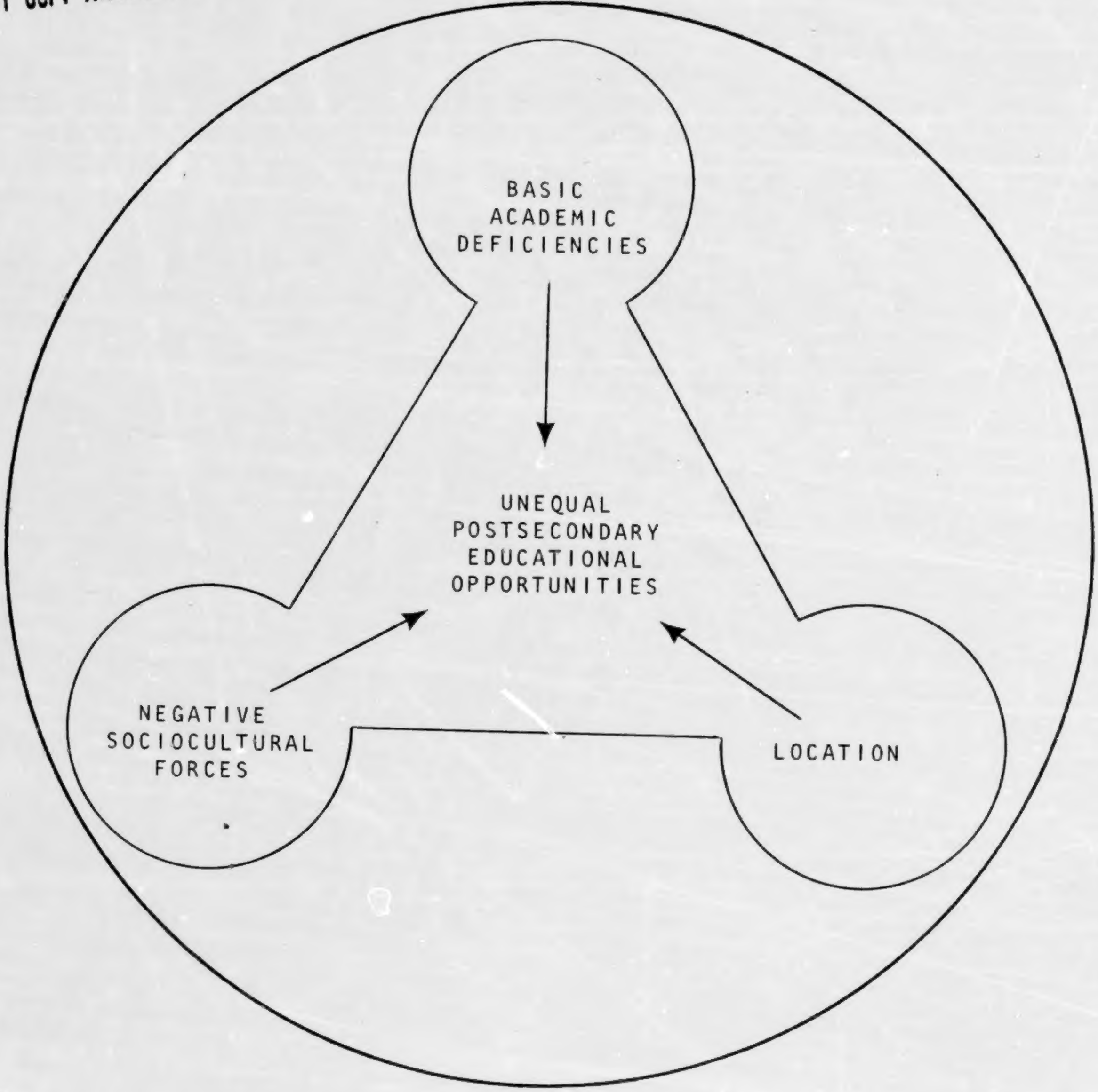
BASIC ACADEMIC DEFICIENCIES
UNEQUAL POSTSECONDARY EDUCATIONAL OPPORTUNITIES
NEGATIVE SOCIOCULTURAL FORCES
LOCATION

Figure 13.
SYSTEM OF FORCES LIMITING
EQUALITY OF POSTSECONDARY EDUCATIONAL OPPORTUNITIES

incorporating this variable into their overall state plans. Location is more difficult to control where private institutions are concerned. Nevertheless, equity would seem to imply that such postsecondary institutions give first consideration to the disadvantaged in their own community. Figure 13 illustrates the convergence of three systems--Sociocultural, personality, ecological--on the disadvantaged students as discussed in this chapter.

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CHAPTER IV

EVALUATIVE RESEARCH AND COMPENSATORY PROGRAMS

Chapter Three of this report was concerned with the evaluation of literature which studied socioeconomic, personality, and location variables producing barriers to access, achievement, and persistence. We now turn to an evaluation of literature which purports to evaluate the effectiveness, efficiency, and equity of programs designed to overcome these barriers.

Research Design in Program Evaluation

It has always been an open question whether a compensatory program or component achieves its objectives because effects may be small and not evident to the casual observer. Furthermore, so much change is occurring spontaneously or in response to larger movements in society as a whole, that it is difficult to separate out the changes which are the result of a particular program from those which have occurred in response to other events. To assess the degree to which a program or project is achieving its objectives is a critical part of the evaluation of compensatory programs.

From our review and evaluation of policy related literature, we did not find any proponents of the controlled experiment as the model for evaluation studies. None of the programs analyzed had the active intervention of an experimenter who administered a treatment (program, project, or component of a program) to subjects selected randomly and arranged in groups equivalent to the manner by which they were chosen, with at least one group to whom the treatment was administered and one from whom it was withheld or to whom an alternative treatment was given. When comparison groups were used, the method of assuring equality between groups by requiring that persons have an equal (or at least known) chance of being placed in either the experimental (treated) group or the control (untreated) group was not employed. When measurements are made on experimental and control groups, comparisons may be studied and estimates may be made of the impact effectiveness of the treatment used. More sophisticated experimental designs also allow comparison with alternative programs according to their effectiveness.

The problem encountered in the evaluation of programs where random selection of program subjects and random assignment to control groups have been utilized is both ethical and scientific. At first glance it appears easy to divide disadvantaged students into experimental and control groups; however, admitting some students, for instance, into an Upward Bound program while withholding admission to others is scientifically difficult because programs such as Upward Bound not only have difficulty in recruiting but, more importantly, in identifying "high risk" students.

The major ethical criticism against randomization lies in the"use" of students. Some critics feel that the establishment of experimental and control groups by the random inclusion of some, may be "random injustice" to the needy student randomly excluded. Others feel that the requirements of experimental designs do not necessarily mean that services be withheld from anyone. The main requirement is that the program or project to be evaluated be different from the services made available to the control groups. Thus, in the evaluation of the impact effectiveness of compensatory programs, a control group might be given traditionally available services--counseling, financial assistance, and other services ordinarily available at the institution.

Because there are different levels, forms and degrees of being disadvantaged, various components of compensatory programs are or ought to be designed for specific characteristics of the disadvantaged population. Random selection may well place the wrong student in the wrong component and jeopardize the entire evaluation process. Programs must be selective. They are designed to be such for real systems are selective of inputs. This makes evaluation difficult. Furthermore, a control group problem arises if students have access only to the traditional institutional services available to all students. To place a disadvantaged student in a postsecondary institution and allow him to follow the same path as students with academic skills, motivation etc., is not warranted for the purpose of scientific experimentation. It is ethically questionable.

A third situational difficulty lies in the extraordinary empirical diversity of collegiate compensatory programs produced by local variations in administration. Because of this variability, dividing students between control and experimental groups may be misleading for generalization because the treatment to be administered to the experimental groups would not be uniform on a national level.

Granting, nevertheless, the validity of the experimental model as appropriate to evaluation research, it does not appear to be the most appropriate for evaluating compensatory collegiate programs. John Evans expressed the view that "ideal evaluation researches following faithfully the experimental models are probably too difficult both to design and carry through" (Peter Rossi, 1972, p. 36). Evans further stated that "Despite the patent dangers of ex post facto designs, they still provide some information and in the setting of social policy it is better to have some information of some probity than to make decisions based on estimates made up of whole cloth" (Rossi, 1972, p. 36).

Peter Rossi (1971) and others, therefore, consider "soft" techniques almost as good as subtle and precise ones, if massive effects are expected or desired (p. 280). If a treatment, they contend, shows no effects with a soft method, then it is highly unlikely that a very precise evaluation will show more than very slight effects. Moreover, if students in compensatory programs and practices show no gain in learning basic skills and competencies, and are not more highly motivated to persist, compared with those who do not participate (initial learning and motivation held constant), then it is not likely that a controlled experiment with students randomly assigned to experimental and control groups is going to reflect dramatic differences either. Consequently, it is worthwhile to consider quasi-experimental and correlational designs as the first stage in evaluation research, discarding treatments that show no effects and retaining more effective ones to be tested with more powerful controlled designs. Although checking for possible correlations after the event may introduce biases, such designs are extremely useful in investigating long-term effects. James Coleman also reflected on the use of models and techniques to be used in studying possible approaches to program evaluation.

In seeking to conceptualize possible approaches, James Coleman and others stressed and defended the simplicity of theoretical models in program evaluation. Coleman stated that if he were to conduct a study similar to Equality of Education (1965) again, he would seriously consider the use of multivariate cross-tabulations with an even more open perspective toward theoretical models, in place of much of the multiple regression analysis used (pp. 98-99). He believed that in the early stages of the search for knowledge about processes in a given area, it is important to use relatively open models, where peculiar quirks of the data which may be highly informative are not lost (pp. 98-99).

Edward Suchman (1967) reminds us that any evaluation implies "measurement" in some form: it is an inherent and inescapable component. The most identifying feature of evaluative research is the presence of some goal or objective whose measure of attainment constitutes the main focus of the research problem regarding effectiveness and efficiency. Evaluative research on the effectiveness, efficiency and equity of programs is in need of a comprehensive model to guide research, organize results, and utilize conclusions for program improvement.

We contend that the systems model, by focusing upon all the major components of inputs, structure, and process, as well as the outcomes and goals is a more comprehensive plan to direct research activity, and to interpret research data in program evaluation. The systems model, we feel, is more pragmatic in the utilization of evaluation findings toward program improvement.

The systems approach is nothing else than the utilization of the systems model. The systems model is a network of concepts and assumptions regarding the structure and process of organizations. It is distinct from other organizational models in that it emphasizes the role of goals in the determination and evaluation of the organization's structure and process. The utilization of the systems model demands that the components be identified; that the boundaries be highlighted, and the goals be specified. Furthermore, the systems model emphasizes the wholistic approach in that it assumes that each identifiable organization is a 'whole' tied together by the interdependence of its complex and semi-autonomous parts in relation to goals. The modern systems approach specifically attends to inputs and outputs and assumes that information is one of the critical inputs into the operation of the system--especially information on current operations and outputs. This information on current operations and outputs as it affects the decision-making process is called feedback. The systems approach sees feedback as an essential component for the maintenance of a steady state, as well as the basis for the improvement and alteration of the system in relation to the attainment of its objectives.

The systems approach is not much more than a model in its present state of theoretical development. It should not, therefore, be regarded as true or false but rather as useful or not useful. It is simply a tool for the organization of concepts and findings and a guide to evaluation.

Yehezkel Dror (1971, p. 13) stated that the systems model makes one alert to the total consequences of alternative choices. We feel that there is an added benefit in the utilization of the systems model as it serves as a check on the absence of critical components or factors associated with effective integration and adaptation. Using the systems model we were able to see immediately the nearly universal absence of adequate feedback components in most college developmental programs. For these reasons we advocate the utilization of the systems model in program evaluation. None of the studies evaluated adequately exploited the potential of this model for total program evaluation.

Whatever the difficulties, from the point of view of theory or conceptual models which face evaluative researchers, we still feel that in the concrete research situation inferences of causal linkages must not violate the canons of scientific research. We carefully noted if the scientific method was observed in evaluation studies of programs just as we did when assessing studies approximating the experimental design in basic research. Special attention, however, was given to the main function of evaluative research, namely, evaluation of the effectiveness, efficiency and equity of programs.

Program Evaluation Needs

In the evaluation of compensatory programs by practitioners, outside agencies, or special commissions, we found the greatest weakness in the evaluative research techniques used to measure the effectiveness, efficiency, and equity of programs. There exists a lack of clarity with regard to the conceptual meaning of these three terms. Consequently, the criteria by which the three aspects of a program are measured are ambiguous. The literature assessed revealed a common error in measuring effectiveness of programs. Ultimate ends, rather than the immediate objectives of a given stage in the program development, were generally used as criteria. For example, in measuring the effectiveness of the Upward Bound program to motivate students for college and to help them acquire skills in order to succeed in college, two measures were used: access and achievement.

Access was used to measure motivation. Achievement, in the form of grade point average, was used to measure increase in basic skills. However, access and grade point average are not the immediate effects of increased motivation or of basic skills, and both are influenced by many factors other than Upward Bound. To use such criteria as measures of Upward Bound effectiveness is a questionable use of ultimate objectives in place of immediate targets. Clearly, measurement of acquired skills and motivation in themselves was in order. A needs assessment or pre-test would indicate what skills needed improvement and a post-test of these same skills before the students left the program would show their achievement better than would their grade point average. If students lacked the ability to write a sentence or a paragraph in standard English when they entered the program, could they perform these skills easily when the program was completed? Such immediate objectives however, were rarely used for measures of program effectiveness.

Criteria for Evaluating Programs

Programs were evaluated for their effectiveness, efficiency, and equity. We developed the following definitions for this report:

- Effectiveness refers to the degree of attainment of specific program objectives.
- Efficiency refers to the ratio of the effort to effectiveness. By effort we mean the inputs of money, manpower, time, and resources.
- Equity refers to the target population. Do the programs help the population most requiring the program outputs or for whom the program was intended?
- National Application asks how does the program stand as a model for national application? This might be equated to the external validity of the program.

Effectiveness

We regarded the chief criterion of the effectiveness of a program to be the degree to which objectives were attained at each stage of program development. The objectives of a program are generally categorized from different points of view, such as, short-range

(1-5 years); medium-range (5-15 years); or long-range (15 or more years). Clearly medium- and long-range objectives are guideposts to future direction rather than immediate tools for the purpose of evaluation. There were many examples of errors in the use of long- and medium-range goals as measures of effectiveness in place of short-term goals. The report, Towards Equal Opportunity for Higher Education, for instance, asked the question how effective were these programs (federal financial aid programs) in lowering the financial barriers to higher education for the neediest of students? The answer was in terms of long-range goals: "The programs have not substantially removed these obstacles or achieved equal opportunity objectives" (p. 32).

Another example of an illicit use of long-term goals for evaluation purposes is contained in the statement: "If the programs were funded and operated effectively, the results should be evidenced in a narrowing of gaps in enrollment rates by income level" (p. 33). Figures were then provided to show that such was not the case. The changing of such rates is certainly a long-term project and even as a long-term measure such rates can be deceptive while both terms in the comparison are simultaneously changing.

It might equally be argued that keeping the status quo between income groups is a measure of success for the lower income groups are a relatively larger segment and consequently change at a slower rate. A similar error of measuring progress by ultimate objectives was made by the Commission on Financing Postsecondary Education in the United States. The Commission noted that the most fundamental goal of equality of educational opportunity is equality of access (p. 115). It estimated that as much as half of the total support for postsecondary education was primarily intended to improve access (p. 135), and used the following as a criterion of success: "To the extent that low-income students, for example, are underrepresented in the student population, there is reason to believe that the objective of equal access is not being achieved" (p. 135). And it concludes that student access in postsecondary education is inequitable, and, therefore, particularly troubling (p. 135). The implied conclusion was that the federal programs have been ineffective, although in the eight years of their operation, the Commission estimated that 1.4 million students--who otherwise would not have attended--had enrolled (p. 136).

Besides the distinction between long-, medium-, and short-range objectives used as measures of attaining goals at the appropriate state of program development, another critical distinction needs attention in order to avoid errors in evaluating program effectiveness and efficiency. Programs have ultimate and immediate objectives. A program's ultimate objective(s) is that final overall state desired for the target population. It is that final condition valued for its own sake, e.g., equality of educational opportunity. Immediate program objective (s) is that desired condition directly intended by the program components and activities leading to the attainment of the ultimate objectives. Thus, the immediate program objectives are those proximate conditions or concrete goals and targets of program activities. Because they are closer to the actual purpose of the activity, immediate objectives are the more valid measurements of effectiveness and efficiency. Ultimate objectives are better used to measure the overall direction of activities. Unless immediate objectives are first obtained ultimate objectives cannot be attained. Thus immediate objectives hold the paramount position in the evaluative process. For instance, students must acquire basic skills of reading and writing (immediate objectives of most compensatory and remedial programs) before they can achieve better grades and graduate (ultimate objectives). Consequently immediate objectives must specify in quantitative terms:

what--the nature of the situation or immediate condition to be attained;

extent--the quantity or amount of the situation to be attained;

who--the particular target population or group in which the attainment is desired;

where--institution, geographic area of the program; and

when--the time at or by which the desired situation or condition is intended to exist.

The effectiveness and efficiency of the "how" is clearly dependent on such specifications. Apart from the distinction between objectives, the greatest cause of confusion and difficulty in both planning and evaluating compensatory programs has been the lack of a clear and consistent distinction between an activity and an objective. To write five essays a week is an activity; to acquire the ability to write an essay is a program objective. If the objective is to motivate, the question arises as to what activities will be used to achieve this end.

It is not fair or logical to use college access, success and graduation as measures of pre-college programs whose specific direct objectives are to increase college motivation and to impart the basic skills necessary to succeed in college. College access, success and graduation are remote objectives not fully under the control of pre-college program directors. The evaluation question should be: Did the students acquire the basic skills aimed at in the program? At the conclusion of the program, did they make a positive attempt to enroll in college? Answers to such questions will show whether the pre-college program was effective. These same distinctions must be made for collegiate compensatory programs. The increase or decrease of a dropout rate or even an increase in the number of students graduating is not an adequate measure of the success of a remedial English, math, or counseling and tutoring program. Yet these are the measures generally used to evaluate postsecondary compensatory programs for the disadvantaged.

A further distinction needs to be made between a program and components of programs. A program is a total organized response aimed at reducing the chances of a student's dropping out and increasing a student's chances of success in a postsecondary institution of his choice. Counseling or tutoring, taken by themselves, for example, are components of compensatory programs. They are not the total program. To measure the effectiveness of a given program, it is necessary to know the effectiveness of each program component; the precise effect being measured in each component must be stated clearly for a measure of effectiveness. It is not sufficient to say an English remedial program will remove basic deficiencies. The deficiencies must be specified; the activities to remove them clearly worked out. Many programs failed in this regard.

Moreover, in evaluating effectiveness, the question is not just: were the program objectives accomplished, but to what extent can achievement of the objectives be attributed to the activities of the program? The conclusion that program activities caused the outcomes requires a judgment that can never be made with absolute certainty. Most good evaluations of programs will reveal imperfect success in attaining objectives. Evaluation should do more, however, than demonstrate degree of attainment. It should also pinpoint the program problems. Locating program difficulties requires measuring each of four program variables: resources or inputs, activities, outcomes, and objectives. In the hands of thoughtful decision-makers, evaluation of program effectiveness can improve not only the planning of programs, but also the adjustment and continuance of effective components, thereby increasing the total program efficiency.

Efficiency

Efficiency criterion is concerned not only with the success of achieving objectives, but more specifically at what cost per unit of output in relation to the inputs of time, money, manpower, and resources were these objectives attained. The question of efficiency, therefore, is a ratio question. When this ratio is standardized, it can be used in weighing alternative programs or recommendations. Efficiency, therefore, is concerned more particularly with the question: Could the same or equal effects be achieved for less money per unit, fewer staff members, or in a shorter period of time? We feel, the two ratio expressions we developed for efficiency are of interest to policy makers.

The first, cost effectiveness, considers only immediate inputs in relation to units of outputs. This may be expressed:

$$\frac{T}{0} + \frac{M}{0} + \frac{Mp}{0} + \frac{R}{0} = \frac{T + M + Mp + R}{0}$$

In this equation, T equals Time; M equals Money; Mp equals Manpower; R equals Resources; 0 equals total units of output.

Very few authors considered the efficiency of their programs by this type of formula and those who did, did so only from the point of view of the input of money, interpreting cost-effectiveness in a strictly economic sense. The second efficiency ratio involves adding the social consequences to the expression and thus becomes a cost-benefits ratio. The distribution of inputs according to equity must be added to the input side of the expression while both manifest and latent positive and negative outcomes must be added to the output side. The following expression includes these elements.

$$\frac{(T + M + Mp + R)\ E}{MPO + MNO + LPO + LNO} \quad : \quad \frac{\text{Inputs}}{\text{Outputs}}$$

In this expression, T equals Time; M, Money: Mp, Manpower; R, Resources; E, Equity; MPO, Manifest Positive Output; MNO, Manifest Negative Output; LPO, Latent Postive Output; LNO, Latent Negative Output.

This second expression hinges on the importance of equity in dealing with the target population and in the fact that every policy choice involves both positive and negative outcomes. The negative consequences may involve a serious violation of equity and so must be considered by policy makers. We did not find the efficiency of any program measured by this second efficiency ratio.

Evaluation of Specific Programs

The literature assessed dealing with programs designed to counteract the impact of the unfavorable conditions or circumstances detrimental to populations who desire postsecondary education was categorized according to governmental and institutional programs.

Governmental Programs

The policy and commitment of the Federal government to education in general goes back to the founding of the Republic and the Northwest Ordinance. World War II, however, provided the occasion for the most dramatic turning point in federal policy and intervention in higher education. It ushered in an era of scientific research to further research and technology in the war effort. Unprecedented financial investment was made in laboratory research which aided hundreds of scholars. The 1944 G.I. Bill produced a post-war enrollment explosion in higher education. The Truman Commission on Higher Education submitted its report in 1946 and this was followed by the Atomic Energy Act (1946-1947) which provided research support and fellowships. The Smith-Mundt Act (1948) began a broad program of international educational exchange and the Federal Property and Administrative Services Act (1948) introduced a broad policy for the disposal of surplus federal property for educational purposes. In continuation of its support to science, the National Science Foundation was established in 1950--a commitment to basic scientific research. Other commitments followed. It was the National Defense Education Act (1958), however, that significantly broadened federal support to postsecondary education and developed new policies for aid to undergraduate students and set the stage for federal commitments of the 1960's.

The Civil Rights Act of 1964, Sec. 601, explicitly stated:

> No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

A year later, 1965, the Higher Education Act was passed in recognition of the special educational needs of low-income families and the institutions that serve them. The Act established a policy of assisting the "needy" student by establishing the Economic Opportunity Grants program, differing from the previous educational policy which had been on a quid pro quo basis for purposes or goals judged to be of national importance either by Congress or some Federal agency. This shift in policy, however, regarded support of higher education as a national goal in its own right. Today, nearly all campus activities may qualify for some form of federal aid: developing institutions, international education, the training of physicians and other personnel, vocational and specialized training, and a host of academic programs. (Wolk, 1968, pp. 1-10)

Through the Higher Education Act of 1965, and Education Amendments of 1972, Congress provided for:

- basic educational opportunity grants to all eligible students;
- supplementary educational opportunity grants to those students with exceptional need who, for lack of such a grant, would be unable to obtain the benefits of a postsecondary education;
- special programs and projects designed to identify and encourage qualified youths with financial or cultural need with a potential for postsecondary education
  - to prepare students from low-income families for postsecondary education and,
  - to provide remedial (including remedial language study) and other services to students. (Sec. 401)

Thus, the Federal Government committed itself to equalizing educational opportunity not only through the National Defense Student Loans (NDSL) but by three additional commitments: Educational Opportunity Grants (EOG); College Work-Study Program (CWSP); and Guaranteed Loan Program (GLP). Added to these programs were two efforts aimed at the pre-college student: Upward Bound and TALENT Search. These two pre-college programs and the special compensatory services offered once the student gets to college are commonly referred to as the "Trio Programs."

We chose for inclusion in this report a set of federal program evaluations and/or national reports which we felt had some policy impact. Clearly the size, extent, and number of objectives of these programs posed formidable methodological problems for the evaluators. We chose the following set of reports because they treat explicitly with areas specified in the legislation for higher education: 1) special programs and projects to identify and encourage qualified youths with financial or cultural need--Upward Bound; 2) supplementary educational opportunity grants--Friedman's study on EOG; 3) financing higher education and providing financial assistance to those most in need. Works evaluated in all three categories include:

- The Greenleigh Associates, Upward Bound 1965-1969: A History and Synthesis of Data on the Program in the Office of Economic Opportunity (1970)
- The General Accounting Office (GAO) Report to Congress, Problems of the Upward Bound Program in Preparing Disadvantaged Students for a Postsecondary Education (1974)
- The Department of Health, Education, and Welfare, Toward a Long-Range Plan for Federal Financial Support for Higher Education (1969)
- Nathalie Friedman, The Federal Educational Opportunity Grant Program: A Status Report Fiscal Year 1970 (1971)

- The National Commission on the Financing of Postsecondary Education, Financing Postsecondary Education in the United States (1973)

Upward Bound: Federal Pre-college Program

In February 1970, Greenleigh Associates, Inc., completed their evaluation of Upward Bound, entitling their report Upward Bound 1965-1969: A History and Synthesis of Data on the Program in the Office of Economic Opportunity. The study was conducted under contract with the Office of Economic Opportunity and in cooperation with the Office of Education of the U.S. Department of Health, Education, and Welfare. It was begun in 1969 and involved field work in twenty-two Upward Bound projects at host colleges in all the OEO regions. What follows is an evaluation of the Greenleigh study of Upward Bound Programs, not an evaluation of the Upward Bound program itself.

Greenleigh Associates studied Upward Bound from its beginnings in the summer of 1965 as a pilot pre-college program for academically and financially disadvantaged students, sponsored by the Office of Economic Opportunity (OEO) until its transfer to the U.S. Office of Education on July 1, 1969. At the time Greenleigh Associates undertook their evaluation, the Upward Bound Program, with an annual budget of about

$30 million, had approximately 300 programs throughout the nation reaching annually about 27,000 of the estimated 600,000 disadvantaged students. The objectives of the Greenleigh study were:

- to study what has been learned in the past years from independent studies of the program;
- to synthesize that information;
- to evaluate the success of Upward Bound in reaching national program objectives;
- to identify the factors responsible for its success;
- to make recommendations involving future program operations and evaluations (p.1).

In order to achieve these objectives, Greenleigh Associates performed the following activities:

- studied all available research reports and evaluations of Upward Bound;
- reviewed existing data;
- made field visits to a sample of twenty-two Upward Bound Programs;
- conducted in-depth interviews with persons who played significant roles in the historical development of Upward Bound and,
- performed a cost-benefit analysis.

The basic analytical tools used in handling the data for this study were item analysis and cross-tabulations of variables. The data did not lend itself to multivariate analysis. Major methodological problems faced the Greenleigh contractors from the start: the lack of quantified objectives for the program; the lack of objective assessment of student's needs; the lack of concrete student selection criteria; and the questionable trustworthiness of the reports.

While under OEO, Upward Bound, according to the Greenleigh Associates, carried out little intensive research even when compared with the Headstart Program. This absence of research, according to the Greenleigh report, was due to a policy decision of both the national directors and their staffs, who, given the funding limitations of the program, felt strongly that program considerations needed every appropriated dollar. "These policy decisions not only limited research on the national level but were written into the Guidelines which forbid research by local projects" (p. 63).

Several other local project factors which caused problems for the Greenleigh evaluation concerned the availability and adequacy of the data base. "Until late 1967, there existed no single, comprehensive data system for Upward Bound. ...The Upward Bound in-house data system, operated out of the contract agency, did not become operative until it began collecting data in January of 1968" (p. 63). Moreover, this data was not designed to measure the effectiveness, equity, or efficiency of the program.

A major objective of Upward Bound was to motivate students toward a college education. Of the previous evaluations presented by the Greenleigh Associates, only two studies tried to measure attitudinal change. These studies found positive changes in motivation for college, interpersonal flexibility, self-esteem, internal control, and future orientation and the retention of all these changes in the students evaluated over the period from 1966 to 1968.

A number of criteria were used to judge the effectiveness of the Upward Bound Program. Of particular note are entrance and persistence. Measured against the national average of fifty percent, the enrollment rate of graduates from high school who attended the Bridge summer program had been approximately seventy percent for the years 1967 to 1969. Data based on a large sample, four thousand seniors in Upward Bound during 1969, showed that eighty-five percent made application to and seventy percent of these seniors were subsequently enrolled in college. Of black Upward Bound students, fifty-six percent enrolled in college in contrast to twenty-seven percent on the national average.

Data from the years 1966 to 1969 indicated that Upward Bound students had a retention rate equal to the national average of fifty percent. Compared with older siblings, Upward Bound students had a higher retention rate both in high school and college.

Greenleigh's criteria to judge the effectiveness of the Upward Bound Program raised serious questions, principally on the matter of selectivity. Upward Bound was supposed to be aimed at low-income and under-achieving students. There was a tendency, however, to select winners. The application of the income criteria caused much debate among program directors; and the GPA of Upward Bound students was raised from 2.27 in 1967, to 2.38 in 1968, and to 2.92 in 1969 (p. 79)--which equaled the regular admissions criteria for many postsecondary institutions. The significance of these criteria is accentuated when one reflects that during this same period institutional criteria for admissions were being eased for minority and disadvantaged populations. The following evaluation then is meaningless.

> For the years 1967 to 1969, although they may have been identified as being Upward Bound, between 64 and 74% of these were considered to have met the basic requirements and were admitted through the regular admissions process. (p. 92)

Greenleigh Associates also noted that between 7.8 and 11.9 percent of the enrollees had gone to institutions with an open door policy requiring only the possession of a high school diploma for admission (p. 92). Moreover, Greenleigh's field visits did not inspire greater confidence. Of the twenty-two projects selected, fourteen were considered "typical" of Upward Bound Programs and eight were "atypical." The data gathered consisted of subjective perceptions of project directors, guidance personnel, and Upward Bound students, regarding the strengths and weaknesses of the programs. Participants in the Upward Bound Program universally expressed their approval of the program and insisted on how beneficially it had affected them. The testimony of impact ranged from personality and attitudinal improvement to academic gains (p. 219). As an evaluative technique, this method of eliciting subjective judgments and opinions is highly questionable and practically useless for policy-making. It serves to demonstrate, nevertheless, the limitations placed on evaluative efforts in the absence of records and hard data.

While the Greenleigh Associates may have at times drawn true conclusions, it was scientifically questionable that their evaluative efforts established the validity of these same conclusions. The final encomium must be taken as rhetoric, not empirical fact:

> Undoubtedly, the program does increase enormously the desire and motivation for college among its participants. It is the central focus of the Upward Bound Program, and the Upward Bound enrollees evidently maintain the aim to do well when admitted to college (p. 223).

This Greenleigh study delineates the critical problems that face both the internal and external validity of program evaluation when a program has not clearly defined its developmental stages and the developmental tasks to be achieved at each stage. It further highlights the need for a feedback monitoring system geared not just to inputs but also to outcomes.

Among the urgent research and evaluation needs identified by Greenleigh Associates are those concerned primarily with analyzing different ways of operating the program. They affirm that the program goals may be achieved in various ways.

Methodology

Three basic methodologies operated in Greenleigh's study: an historical analysis of the development of Upward Bound; field investigations into the Upward Bound program at twenty-two, non-random program sites; and quasi-experimental and control series (students exposed to Upward Bound compared to those who had no exposure.)

The limitations of available data for the authors' historical analysis have already been mentioned. As to the site visitation methodology, the selective sample of the twenty-two programs could be questioned. Many of the subgroups within these twenty-two were exceedingly small: for example, the total number of secondary teachers was forty-one. In some cases the site was not representative because students were compared with students in the universe on certain selected dimensions. In other cases there was a reliance on existing data which the researcher merely reworked to suit his purpose. The general research outline of the Greenleigh study was:

Objective: to note the effectiveness of the Upward Bound Program

Research Model: Experimental-Control Group Series

Experimental	Control
7,236 Former Upward Bound Students	7,236 Older Siblings of Upward Bound Students

Sample derivation is from 15,000 former Upward Bound Students

Control: Race and sex (matching procedure)

Dependent Variable Measure:
Educational attainment, specifically college enrollment.

Statistical Test Utilized:
Chi-square Test of significance.

Major Finding:
There was a significant difference between the experimental and control group series in rates of college attendance. Those exposed to Upward Bound attended college at a significantly higher rate than their control group equivalents.

Conclusion:
Upward Bound has made a significant contribution to this college attendance differential.

Certain methodological problems pertained to this design. First, the two groups were not necessarily equivalent on the critical variables. This is generally a problem when the research, out of necessity or convenience, makes use of intact groups. The younger siblings could be more intelligent and more motivated; they could be influenced by some other pertinent factors contributing to the differential observed in the college attendance rates. Second, this difference could have been attributed in part to a general trend of increased enrollments within the disadvantaged population. Simply stated, the disadvantaged youth of 1970 was more likely to go to college than the disadvantaged high school graduate of 1965, irrespective of the Upward Bound Program. The increase noted in college attendance among the younger Upward Bound enrollees might have been in part a reflection of this change. Third, the sample was non-random and not truly representative since it included only those students with older siblings. This then really says nothing about individuals exposed to the Upward Bound Program but lacking an older, comparable sibling. These problem areas did necessarily place some question marks on the overall conclusion of the study. We, however, in no way wish to indicate that Upward Bound was ineffective, but rather that the design did not fully handled the proposed research question.

The General Accounting Office (GAO) Report to Congress, Problems of the Upward Bound Program in Preparing Disadvantaged Students for a Postsecondary Education (March, 1974), described the results of Upward Bound in relation to program goals as defined by Congressional legislation. The GAO utilized secondary data from the Office of Education (OE) and collected data for its own survey of fifteen selected projects throughout the nation to make an evaluation of how effectively Upward Bound achieved its stated objectives. As such, this report can be categorized both as evaluative research and policy analysis.

The method of evaluation employed by the GAO was as follows:

definition of the program according to its final cause or purpose;

definition of the target group;

description of the program from 1965 to 1973, according to the number of projects, annual enrollment and obligated Federal funds, and educational status of former Upward Bound students as of January 1973.

Upward Bound is defined as a pre-college, preparatory program designed to generate the academic skills and motivation for success in education beyond the high school. The target population to be served are youth from low-income families who have potential for success in a two- or four-year college but who without the program, would not have considered college enrollment nor would they have been likely to have gained admission to or successfully completed college because of inadequate high school preparation and/or underachievement. The Office of Education responsible for administering the program has ten regional offices responsible for guiding individual projects.

The General Accounting Office (GAO) judged the effectiveness of Upward Bound on the basis of legislated goals: the generation of academic skills and the generation of motivation. The fulfillment of these two essential goals was to enable low-income, high academic risk students to gain admission to two- or four-year colleges and to graduate.

The Office of Education, from whom the GAO sought information, had data in its management information system on the college enrollment, retention, and graduation of its former Upward Bound students. The system, however, did not contain any data on the academic skills and motivation levels of students when they entered and left the program (p. 10). The GAO investigators questioned the adequacy of using access, retention, and graduation statistics as the best criteria to measure the success of Upward Bound. Statistics on the Upward Bound students were useful but not as real measures of effectiveness. A better measure of effectiveness, GAO asserted, was the extent to which Upward Bound had increased the academic skills and motivation of the participants. A needs assessment on admission to the program, therefore, was mandatory for demonstrating the degree of increase.

How many students in the Upward Bound programs really needed special help to improve basic academic skills? In six projects alone GAO found that former students at the time they entered the program had a "B" average or better.

Having proposed that improved academic skills and motivation were the real test of the effectiveness of Upward Bound, the GAO office was unable to use this test in the absence of any pre-test or post-test. Only one of the fifteen projects reviewed had a test which showed that the students were two or four years below grade level when they entered the program and were also two to four years below grade level when they graduated from the program.

Information on the college performance of 792 former Upward Bound students who dropped out of college showed that 598, or about sixty-four percent, had been on probation and had a grade point below 2.0 (C average). Of these, 168, or about thirty-three percent, had been academically suspended. Likewise, 378, or about seventy-four percent, had left college with less than a 2.0 average before completing one year's work. Statistical tests of the relationship between the student's time in the program and his success in college indicated that the program had increased the motivation of the student to enroll but had not adequately prepared his academic skills to ensure success in college. GAO used college enrollment data as a proxy measure of academic preparedness. GAO hypothesized that students with more exposure to the program, measured in months of participation, would be more likely to enroll in and to succeed in college (p. 17).

The report simply states that GAO reviewed fifteen projects in Arizona, California Florida, Georgia, Massachusetts, Nevada, New Hampshire, Rhode Island, and Vermont that obligated 12.1 million dollars through June 30, 1973. It is noteworthy that no project from the Midwest was reviewed. No justification was given for this selection of a sample and there was no indication that the sample was representative.

GAO, verifying the Office of Education data on these fifteen projects, found a ten percent error in overstatements of numbers of students enrolled in college. Other errors in OE data regarded retention rates which fell from seventy-one percent to thirty-nine percent. The reason given for this error was insufficient time allotted to account for the dropouts in the final year 1968-69. Instead of being above the average, as was claimed in the Greenleigh report for the four years 1966-69, the retention rate was actually thirty-nine percent or eleven percent below the national fifty percent level (pp. 14-15).

The GAO found from their own examination of fifteen projects that the results from the statistical test, chi-square, were significant when testing the relationship of the programs and success in motivating participants to enroll in college. But when tests of significance were applied to the relationship between those exposed to the program and college retention, the results were insignificant (p. 18). On the basis of their evaluation, GAO judged that the Upward Bound Program had apparently not achieved its goals. Factors contributing to the programs' limited effectivness were presented in the report.

- The Office of Education failed to establish clear, measurable objectives to be accomplished by Upward Bound within a specific time, according to HEW requirements.
- OE's management information system did not provide program officials with accurate and prompt data on program results.
- OE did not require projects to identify students' educational needs and motivation levels, to base curricula on those identified needs, or to measure progress in overcoming students' weaknesses.
- OE did not have an effective monitoring system for determining the success of individual projects in accomplishing their goals.
- OE had no assurance that the program was serving its intended target group. (p. 20)

The report concluded with recommendations for improvement based primarily on the factors contributing to present failures. They stressed measurable objectives, improvement of data collection, identification of the target population, and evaluation. The recommendations can also be looked upon as critical for all programs.

Evaluation of the GAO Report

The GAO report illustrates the potential of feedback for evaluative research; nevertheless, it also demonstrates some of the difficulties that are not easily anticipated or avoided when doing evaluation studies. Our evaluation of the report on Upward Bound shows that the GAO ought to have avoided some of its own pitfalls. The defects and strengths in the GAO report were:

- GAO, by non-randomly choosing fifteen projects out of 300 for evaluation hardly used an adequate measure of effectiveness, efficiency, and equity of the total program. Though the sample may have been adequate the report did not show this.

- The GAO report questioned the validity of using college admissions, retention, and graduation as measures of Upward Bound's effectiveness in place of direct measures of motivation and skill attainment. The GAO, however, proceeded to use admissions as a measure of skill achievement--as proxy measures. This was a questionable procedure, as many factors not within the control of the design, such as lowering admissions standards and graduation criteria, affect both admission and retention.

. The major value of the GAO report lies in its criticism of the structural and monitoring system of Upward Bound, and in the recommendations made for the improvement of its data collection upon which a valid evaluation of effectiveness, efficiency, and equity may be based.

. The conclusion of the GAO report that Upward Bound had failed to attain its objectives does not follow from the "evidence" collected in the report. Such a conclusion may be put into the same category as the conclusion of the Greenleigh report that "the results of slightly more than four years of Upward Bound are an incredible success story." Neither conclusion validly followed from the data. The conclusion which both reports ought to have come to would better be stated as a non-conclusion as to the effectiveness of Upward Bound in the absence of adequate data.

The Federal Educational Opportunity Grant Program: A Status Report Fiscal Year 1970 by Nathalie Friedman (1971)

Nathalie Friedman's report on the Federal Educational Opportunities Grant Program (EOG) was the first extensive national study of EOG after the program had been in existence for five years and was undertaken by the Bureau of Applied Research, Columbia University, by contract with the Office of Education during the academic year 1969-70. The general objective of the study was to assess the extent to which the goal of extending the opportunity for higher education to high school graduates of exceptional financial need was being achieved. (p. 2). The specific aims of the report were four:

- To identify the demographic, academic, and attitudinal characteristics of students receiving EOG's;
- To describe the characteristics of institutions participating in EOG programs and to note the procedures and problems involved in the administration of the program;
- To examine the financial aid packages, policies, and practices of institutions as well as the financial aid packages awarded to students;
- To determine the extent and effectiveness of institutional efforts to recruit, admit, and retain students of exceptional financial need (pp. 3-4).

Friedman's undertaking was comparable to the challenge that faced the Greenleigh Associates in their efforts to evaluate Upward Bound programs and the same methodological problems arose in evaluating the EOG programs. The Friedman study, however, did not directly attempt to evaluate the effectiveness or efficiency of EOG programs. Her approach was indirect through a descriptive analysis of participating institutions. Her report, however, did directly evaluate equity in the distribution of EOG funds to the disadvantaged population.

EOG, one of the major federal programs specifically aimed at the financially disadvantaged, was instituted by the Education Act of 1965 and was administered by the Office of Education. Its purpose was:

> to assist in making available the benefits of higher education to qualified high school graduates of exceptional financial need, who for lack of financial means of their own or their families would be unable to obtain such benefits without such aid (p. 3).

At the time Friedman examined the program, the monies were not given directly to students but rather to participating institutions, to be distributed to the needy students of their choice. Grants in 1969-70 ranged from $220 to $1000 based upon an assessment of need and with the stipulation that the grant not constitute more than half of the student's total aid package. Guidelines for the administration of the program were set forth in the legislation (as passed in 1965 and amended in 1969), in the EOG manual and in periodic memoranda to participating schools (p.3).

When Friedman set out to evaluate the program for the year 1969-70, there were 1,939 institutions of higher education involved, with an estimated 260,000 students receiving aid. Methodologically, Friedman took a two step approach: descriptive, followed by analytic.

The descriptive section dealt with EOG students and institutions, financial aid practices and policies of the institutions, problems experienced in the operation of the program, and finally, the institutional characteristics and procedures correlated with perceived and actual success in administering the program. The research design was primarily that of basic descriptive research with some analysis of the policy implications of the data collected. The analytical part of the author's design was the analysis of sample returns from 10,000 students from 711 selected institutions and analysis of reports from the financial aid officers.

Sampling Procedures Used

Friedman used a random sample. Selected colleges receiving EOG funds were stratified. It was found that fifty-two percent of awards were granted to only twelve percent of the institutions. Twenty percent of all financial awards were granted by over 1,200, or sixty-six percent of the participating institutions. The reason for the uneven distribution was not adequately analyzed in the report.

All of the institutions receiving the largest allocations were chosen. Every institution having three hundred or more awards was included in the sample;

every other school having a medium-sized program (100-299 awards) and every fifth school with under one hundred awards. A sample of 711 institutions was obtained: small-program schools--239; medium-program schools--243; large-program schools--229. This sample was representative with only a slight bias in favor of four-year public institutions in the sample of small programs.

Student Sample

The financial aid officers of each school were asked to provide a list of all students receiving financial aid. All but fourteen complied with the request. The student sample was then drawn up as follows: small-program schools--2,271 (twenty-five percent); medium-program schools--4,271 (ten percent); and large-program schools--6,074 (five percent). This procedure gave a sample of 12,405 students of whom 10,166 replied for a response rate of 81.3 percent.

Administrator Sample

Administrators from the 711 schools were asked to respond: the rate of response was 81.6 percent. The bias caused by the non-response of institutions was negligible; however, the bias caused by the failure of 2,000 students to respond caused some underrepresentation of non-residents, the financially poor and black males. While respondents and non-respondents differed on some characteristics, there was no appreciable difference between the final sample returns and the universe of EOG students. The findings of the Friedman study, therefore, carry considerable weight and validity both internal and external as descriptive data.

Findings Relative to Low Income Families and Minorities

The Friedman study found that seventy percent of EOG students came from families with annual incomes below $6,000. The remaining thirty percent of the students whose family income exceeded $6,000 received lower grants and tended to have a larger number of dependents.

Analyzing recipients from the aspect of minority, Nathalie Friedman found that twenty-five percent of EOG recipients were black. Minority allocations had increased from 29.6 percent in 1968-69 to 32.1 percent in 1970 (p. 65). Of special interest is the question of the academic levels of EOG students compared with the national body of students. It was a surprise to find that only eleven percent of EOG students were considered 'high risk' by the financial aid officers (p. 117). Regarding this point, Friedman remarked that "on the surface, EOG freshmen are not as academically handicapped in comparison with the national college population, as they are financially" (p. 80). She further stated that their high school rank and average grades were above the national norms, coming in general from the top twenty five percent of their college class (pp. 81-82). However, EOG monies were earmarked for those students whose potential was not apparent from conventional measures and who had exceptional financial need. The monies were not intended to be a scholarship. Friedman asserted that an evaluation of the effectiveness of the EOG program required assessing the extent to which institutions had waived traditional academic criteria, had admitted 'high risk' students seeking such benefits, and then provided students with the financial aid necessary to benefit from these opportunities (p. 85).

Minority/low-income students, Friedman found, who had low high school rank and/or low test scores, who planned only after high school to attend college, who are classified as 'high risk,' who are vocationally oriented, find their way most frequently to the two-year institutions. Students with these characteristics were least likely to attend the private university. Almost forty percent of EOG students of minority background were in public four-year colleges.

Findings Relative to Recruitment of EOG Students

Most special recruitment programs were administered by a financial aid officer, registrar, dean of students, or some other college officer. Recruitment programs at public universities and four-year colleges were generally directed by a person whose sole responsibility was administering the program (p. 102). Private institutions were most active in recruitment and led all other institutional types in the use of various recruitment devices. Two-year colleges utilized the least recruitment devices for disadvantaged students. Regular contact with high school principals and guidance counselors in low-income areas was the most frequently used device by all institutions (p. 102). As to factors limiting or preventing recruitment efforts, insufficient funds were cited most often by all institutional types (p. 102). Many schools reported that they did not attempt to recruit disadvantaged students because they already had sufficient needy applicants. Private universities ranked highest on the recruitment index Friedman devised. She suggested that greater latitude and flexibility could be achieved when recruitment was a separate structure, rather than part of the duty of the over-burdened financial aid director, admissions officer, or registrar (p. 108).

Friedman's Analysis of Recruitment

Because the study design of EOG institutions did not permit a "before-after" comparison of the numbers of low-income/minorities, Friedman suggested that the recruitment activities of EOG institutions be judged with caution for their effects are hard to isolate (p. 108). Two-year schools, for example, had an over-representation of financially and academically deprived students and recruitment efforts at these institutions were limited. These institutions not engaged in active recruitment of disadvantaged students should not be penalized when funding recommendations were made, according to Friedman. She also astutely observed it was possible for some recruiting efforts to be a "creaming" process, that is skimming the most academically promising students from the pool of disadvantaged students (p. 111).

Findings Relative to Admissions

Friedman found that almost one-fifth or twenty percent of the EOG recipients were admitted under modified admissions criteria while this was true of only seven percent of the total student population. Two-year institutions waived or modified criteria for all students more often than other types of institutions. Financial aid officers reported that 'high risk students'--those who generally were unable to meet admissions criteria, ranked low on test scores, had minority group membership--made up only eleven percent of the EOG sample. Black students were seven times more likely than white students to be labeled 'high risk' (p. 121). Institutions admitted disadvantaged black students who had at least a good chance of succeeding in high quality institutions. Friedman states that "It would be unrealistic, however, to expect the most severely handicapped black students to compete in high quality institutions where mean SAT's may well exceed 600's" (p. 124). And although EOG students were more likely to be in the top twenty-five percent of their class, this academic measure was relative to the quality of the high school. Objective SAT or ACT scores were missing to verify this interpretation. Although Friedman felt that there might not be as much "creaming" as would appear at first sight, the data she presented, however, would indicate that creaming was widespread limiting 'high risk' EOG students to eleven percent.

Findings Relative to Supportive Services

On the question of whether supportive services had been offered the disadvantaged student admitted to the college, Friedman found that all but six percent of the schools in the sample provided one or more supportive services for the students (p. 131). A number of interesting distinctions on the provision of supportive services may be discussed. Remedial courses were more likely to be provided by schools in the public sector, especially the community colleges, while private universities were more likely than any other to provide tutorial and extra counseling services. "In every type of school and in every region of the country, a higher proportion of EOG students than of other undergraduates is likely to be using some supportive services " (p. 132).

Of special significance was Friedman's finding that in schools with the most active recruitment programs EOG students were two and a half times more likely than all undergraduates to utilize remedial and tutorial services (p. 132). This finding, that students in community colleges were least likely to receive supportive services, was in line with previous findings. Is this an indication that community colleges may become the dumping ground for disadvantaged students? Friedman found that sixty percent of 'high risk' EOG students did in fact receive remedial and tutorial help. Once more these services were more likely utilized at the private university, where seventy-one percent of the 'high risk' students utilized supportive services.

Retention and Attrition

On the question of retention, Friedman compared the freshman retention rates for EOG students and for all undergraduates in different kinds of institutions, and found:

- The highest retention rates for both groups are in private universities; the lowest in public two-year institutions. (p. 140).
- Retention rates are almost identical for predominantly black and white institutions, but are highest in the most selective and lowest at the least selective schools. (p. 140).
- The lowest retention rates for both EOG and other undergraduates obtain in open admission institutions. (p. 143).
- Retention rates for regular undergraduates vary inversely with the rate at which admissions criteria are modified or waived for them. For EOG students, however, only in open admissions institutions is the retention rate low. Otherwise, there is no relationship between retention of EOG students and the extent to which admissions criteria are waived. (p. 143).

Regarding the attrition rate at the end of the first year, Friedman found from the year 1968-69 Fiscal-Operations Reports that 16,466 left for financial, academic or other reasons. Eleven percent of EOG attrition was due to financial factors for all institutions; attrition rates for academic reasons accounted for thirty-two percent of 1968-69 EOG recipients and varied widely by type of institution, control, racial composition, and federal region. The attrition rate, however, at predominantly black institutions was as high as twenty-two percent for financial reasons. The attrition rate for academic reasons rose to thirty-eight percent in institutions with more rigorous curricula and reached forty-two percent at black institutions (p. 145). These findings become extremely difficult to interpret or to understand when Friedman stated:

> It is encouraging that "only" 3 percent of the 254,000 students receiving EOG's in 1968-69 were victims of attrition for academic reasons. (p. 147).

It appears that the "3 percent" can only be construed as a clerical error and that the thirty-two percent overall attrition rate of EOG students was accurate as was reported in Table 4.23 (p. 158).

Friedman concluded that it was imperative to build into allocations to each institution and to each student sufficient funds to ensure his financial and academic survival in college (p. 146). While recruitment, modification of admissions, provision of supportive services were all activities which were specified as conditions for institutional participation in the EOG program--the core of the program was found in the provision of financial aid to needy students. Thus the evaluation of the program necessitated an examination of institutional policies and practices governing the distribution of EOG funds to students.

Distribution of Financial Aid

Friedman noted that ninety-seven percent of the institutions indicated that EOG funds did in fact provide financial aid to students recruited under the special provisions of the ACT. Since EOG funds covered only a portion of the student's financial needs, the success of the program was inevitably dependent upon the success of the financial aid officer to put together packages from several sources. Friedman found a wide variation both in policy and practice among types of institutions. She concluded that monies were being disproportionately channeled to the detriment of those with greatest need on a national level. On the local level, where it came to the distribution of tight EOG monies, over three-quarters of the schools favored freshmen--especially at the university level. Further, two-year colleges were likely to distribute EOG funds to the academically better student although academic performance was not supposed to be a criterion. This selective process tied in with the excessive number of qualified applicants. Universities were least likely to have used the academic criterion in their EOG disbursement because they had more grants at their disposal than two-year colleges and these grants were "freed" for the better students by funnelling EOG grants to the academically poorer EOG students. Such a luxury was not available to the two-year institutions.

- 35 percent of the predominantly white but only 20 percent of the predominantly black college schools indicate that their 1969-70 allocation was sufficient to award initial year grants to every eligible student. (p. 151).
- In states which were funded at 85 percent or higher, 56 percent of the institutions reported sufficient funds; in states, however, which were funded at less than 70 percent, only 22 percent reported their allocation to be sufficient. (p. 155).

Public institutions with lower costs were also better able to adjust the size of grants and in so doing stretched the allocation of EOG funds to cover more students. Thus private institutions which have better supportive service programs were least able to accept the EOG students. This clearly reduced the EOG student's freedom of choice and chances for survival. Community College EOG students had the highest drop-out rate for this very reason.

The Friedman study also revealed that two-year institutions, both public and private, were less likely to require loans but more likely to require that students work to supplement their EOG monies (p. 164). The NDSL (National Defense Student Loan) was least likely to be a part of the EOG student's financial aid package at the two-year institution.

Limitations of the EOG Programs

Using the criterion of adequate funding for eligible applicants as the 'crucial measure' of federal financial aid programs' success, Nathalie Friedman underlined the following limitations of the EOG programs:

- Funding is least adequate where the need is greatest. (p. 234)
- White institutions are more favored than black ones. (p. 234)
- Public two-year schools, in which low-income students are overrepresented, are least frequently located in states which are funded at 80 percent or more. Institutions in counties which have 50 percent or more of the population subsisting on incomes of less than $3,000 receive less favorable funding than those in the wealthier counties.
- Funding is less favorable for institutions in which higher proportions of all undergraduates receive financial aid.
- The Congressional mandate to channel funds to students with the greatest need is being executed at the institutional level but is being thwarted at the national level in the allocation of funds. (p. 234)

Friedman found that the constant refrain of participating institutions, with only a few exceptions, has been "inadequate funding for recruitment, for financial aid, for supportive services" (p. 236)

> The data presented . . . confirm the need to allocate more funds--especially to institutions in which exceptionally low income students are overrepresented. Financial aid personnel are doing their utmost to fulfill program objectives with the scarce resources at their disposal. (p. 236)

Evaluation of the Friedman EOG Report

As a piece of basic research, the Friedman Report on the Educational Opportunities Grant Program used a good representative sample. Consequently, the descriptive findings can be accepted as accurate having both internal and external validity. Friedman's findings have been reiterated here at some length because of the importance given to financial assistance in equalizing educational opportunity for the disadvantaged. When we hold up the Friedman study to the definitions of effectiveness, efficiency and equity developed for this study on policy related research, however, some provocative issues surface.

Effectiveness

In evaluating the effectiveness of programs, we are interested in the degree to which specified goals of the program are attained. That is how we defined the concept and used it throughout our evaluative project report. One of Friedman's specific objectives was "to determine the extent and effectiveness of institutional efforts to recruit, admit, and retain students of exceptional financial need" (p. 16). The other three objectives merely required her to describe, identify and examine different aspects of the EOG program.

In evaluating the effectiveness of the EOG program, Nathalie Friedman estimated that 260,000 students received a college education who would otherwise not have attained a postsecondary experience because of their financial situation and need. This data, however, does not impart a measure of effectiveness which should have addressed the question: What percentage of the total financially disadvantaged population was this quarter of a million student group representing? Friedman did not make this estimation. Furthermore, what was the immediate target, if any, of the EOG program? What would be an effective target for the year evaluated? These figures were not specified. The program may presumably be considered effective for these 260,000 students who participated in the EOG program, but this does not give a measure of the program's effectiveness or degrees of effectiveness.

The Efficiency of the EOG Program

No attempt was made to measure the efficiency of the program and this was not one of Friedman's contractual objectives.

Equity of the EOG Program

Two questions may be raised to get at the issue of equity. Did the EOG program reach those for whom it was intended? Did the quarter of a million students aided by the Educational Opportunity Grants fit the criteria of qualification for assistance? Answers to these questions were the primary objective of the Friedman study. Moreover, answers to these questions measure the equity of a program, not its effectiveness. Friedman clearly and validly established the equity of the Educational Opportunity Grant Program. Those who were aided generally qualified for financial assistance. Friedman however, expanded the question of equity to include priority. In so doing, she unearthed the disturbing fact that those who needed most help received the least assistance. The tragic plight of the financially disadvantaged student who suffered from academic deficiencies was a side issue of the Friedman report, but it loomed large demanding an equitable solution. Only eleven percent of the EOG students were classified as 'high risk.' Most of the EOG students came from the top quarter of their high school class. There was clear evidence of "creaming."

In sum, the Friedman report measured the equity not the effectiveness or efficiency of the EOG program. And it is commendable for its attempt to bring the equity issue to the policy makers.

Toward a Long-Range Plan for Federal Financial Support for Higher Education by DHEW (1969)

The report to the President was prepared under the direction of Alice M. Rivlin, then Assistant Secretary for Planning and Evaluation of the Department of Health Education, and Welfare. Dr. Rivlin chaired the advisory committee and the report is commonly referred to as the Rivlin Report. Despite the billions of dollars invested in higher education, the report revealed that there really did not exist a coherent federal program dealing with objectives, priorities, or alternatives to other types of support. Moreover, the report indicated that:

> The Federal Government has never developed an explicit strategy for the support of higher education. Although Federal involvement is large, accounting for 21 percent of higher education's expenditures (including research), its multiple programs have grown in response to specific needs of particular kinds of students or of institutions or of Federal Government itself. No real attempt has been made to define an appropriate role for the Federal Government in the financing of higher education. (p. 2)

That there was no explicit strategy for supporting higher education was a concern especially in the light of the nation's growing educational needs and decreasing financial resources to meet the needs. The report, therefore, had addressed itself to the Federal Government's role in strengthening postsecondary education. The committee's first step in evaluating possible alternative Federal plans was to ask the question: "Toward what national objectives should the plan for higher education be directed?" Six fundamental objectives were identified at which the committee felt any Federal plan for aid to higher education should aim:

- Increasing the number and proportion of educated people;
- Increasing equality of opportunity for higher education;
- Improving the quality of higher education;
- Preserving diversity in higher education and advancing institutional autonomy and academic freedom;
- Strengthening graduate education and institutional research and the public service capabilities of higher educational institutions;
- Encouraging the efficient use of resources in higher education.

Of interest to our report is the fact that the Rivlin Report listed "increasing of quality of opportunity for higher education" as one of its major objectives. "The time has come for the Federal Government to guarantee that every student with the ability to pursue a higher education should be able to do so regardless of income, race, or place of residence." (p. 3)

Data Used for Analysis

The Rivlin Report in its empirical description of the actual situation in relation to the proposed national goal took its findings from Project TALENT. The limitations of the longitudinal data of Project TALENT have been described elsewhere in this report. One criticism was that the effects of SES were in fact conservative because of the sample bias. The Rivlin Report in its analysis found that "College attendance is highly determined by income and the other factors which may be described as 'socioeconomic status' (SES) of the families of high school graduates" (p. 5). The Rivlin Report then logically asked: what is the impact of student aid on college attendance? (It will be recalled that the year this question was posed was 1968-69). The answer did not emerge from the study. No major experiment had been carried out to evaluate the effectiveness of the efficiency or the equity of any of the various Federal Financial Aid programs at that time. Consequently, the research group found that in the absence of major experiments to measure the impact of different forms and levels of student aid, it was necessary to "make guesses based on analysis of the present behavior of students from different income levels facing varying prices for higher education" (p. 7).

Rivlin Report's Conclusions

The analysis of the data was presented in summary form and a general conclusion was drawn that college enrollment is highly responsive to changes in cost to the student (p. 7). The Rivlin report cautioned that any projections of increased college enrollment based on increased financial aid are subject to errors as other barriers exist to access apart from financial. Yet a conclusion was drawn that if a $500 subsidy was offered to all high school graduates in the lowest half of the income distribution it would increase first-year college enrollment for low income groups by over 25 percent in two years" (p. 7). Somewhat later in the report the authors say that "our evidence on price responsiveness at family income levels below $6,000 and above $12,000 is not sufficiently refined to be presented at this time" (p. 61).

In regard to the adequacy of Federal aid for undergraduate education, the study found that the "present level is not even adequate to meet the needs of those students who are eligible under the rather stringent need criteria used to allocate funds" (p. 8). Moreover, existing programs contained fundamental limitations which could not be removed without changes in their present structure. One of these limitations was the need for low income students to apply to a specific institution in order to qualify for aid. The study group found a great deal of literature showing that the low income students had poor academic grades and study habits, which not only diminished the students' college aspirations but also limited their chances of being admitted to a postsecondary institution. The Rivlin Report was consistent with others who implicitly or explicitly called attention to the barriers of poor academic grades and poor study habits in addition to the students' low income status.

The Rivlin Report also questioned the adequacy of graduate student aid. It concluded that "the number of graduate fellowships needs to be expanded quite rapidly in the 1970's if the present proportion of graduate students supported is to be maintained" (p. 9). Moreover, significant differences existed in federal support for various fields of study. Federal graduate fellowships were "nearly twice as high in the physical sciences as the proportion in the arts and humanities" (p. 10).

Student Versus Institutional Aid

One of the major issues considered in the Rivlin report appropriate to our study of the disadvantaged and policy research was the question of direct student aid versus institutional aid. The report observed that emphasis on student aid "is most appropriate if a high weight is given to the objective of improving equality of opportunity for higher education" (p.20). If the emphasis is on the student aid rather than on the institutional aid, monies can be directed to those students from low-income families who need financial aid to attend college. The authors found that

> While student aid alone will not correct the problem of inequality of opportunity, studies indicate that college-going among the poor is significantly influenced by the amount of student aid. A major program of student aid would, of course, aid some low-income students who would have gone to college anyway, but it would also significantly increase the number and proportion of low-income students getting a higher education. (p. 70)

The report further stated that an "equal sum spent on institutional aid, by contrast, would have far less effect on equality of opportunity" (p. 20).

Evaluation of Conclusions

Many of the conclusions drawn in this report were stated in a hypothetical form and based on philosophical reasoning as much as on empirical data. The empirical data, usually selective, often lacked documentation. Intuitive conclusions may well be true, but are subject to the biases inherent in judgments based on value assumptions. In spite of these reservations, the report is a good example of policy analysis used for the purposes of advocacy. The Education Amendments of 1972 appeared to reflect much of the thinking of the Rivlin Report.

Financing Postsecondary Education in the United States
by the National Commission on the Financing of Postsecondary Education. (1973)

By 1970, federal aid to postsecondary education had risen to $6 billion, channelled through more than 300 programs, administered by a dozen different departments and agencies (p. 3). The 1969 Rivlin report reminded the nation that a national strategy did not exist governing the vast postsecondary enterprize. The year 1972 was another year for appraisal.

In preparing for the Higher Education Act of 1972 the Ninety-Second Congress reviewed many of the programs embodied in the Higher Education Act of 1965 and subsequent legislation to determine which should be continued, which expanded and which ended. The principal consequence of this debate was the Education Amendments of 1972, an act which, among other provisions, extended many of the existing federal aid programs, added new basic student grants for every high school graduate who wanted to continue his or her education but lacked sufficient resources to do so, and encouraged the establishment of new structures at the state level to improve all forms of statewide planning for postsecondary educational systems.

During the debate that preceded passage of this act, Congress found that it could not resolve all the issues, and added a provision establishing a National Commission of the Financing of Postsecondary Education. The Commission was charged with developing an analytical framework to review existing financial programs and to recommend new financing methods and policies which would most effectively serve the national interest. Specifically, the National Commission on the Financing of Postsecondary Education, appointed by the President and Congress, was given the task to study:

- The impact of past, present, and anticipated private, local, state, and federal support for postsecondary education;
- The appropriate role of the states in support of higher education (including the application of state law on postsecondary educational opportunities);
- Alternative student assistance programs; and
- The potential federal, state, and private participation in such programs.

The Commission had until April 30, 1973, to complete its task. Despite a budget of $1.5 million, the Commission failed to meet its April deadline which was extended to December 1973 when the report was finally disseminated. The National Commission's report, however, must be regarded as an important policy document because it is an analysis of those aspects which deal more specifically with the disadvantaged and postsecondary education. The Report is of some interest to evaluative science because it describes how an evaluative commission structured its work and the type of personnel who advised, consulted and assisted with the project. Among the seventeen members of the Commission were representatives of senators, chancellors, congressmen, governors, presidents of colleges, members of boards of trustees, presidents of banks, deputy commissioners of education, superintendents of public instruction, professors, and students. The commission was assisted by a commission staff of five members and a research and editorial staff of fifteen persons; a thirty person staff consultant, technical and clerical staff along with eight special advisors and assistants. This huge staff constituted the organization that carried out the $1.5 million dollar project.

The issue of whether the study could have been managed and operated more economically necessarily arises. In the first place it was mostly a study of secondary sources as the commission itself acknowledged:

> In carrying out its responsibility, the commission has relied heavily upon the work of earlier commissions, state study groups, private agencies, and individual researchers, rather than undertaking extensive original research of its own into each of the topics before it. (p. 9)

The analytical framework was not evaluative, nor did the Commission analyze policy alternatives for education. Secondary sources were not evaluated but were used only to support conclusions already reached or assumptions held.

The commission also relied heavily on individual and group viewpoints for support (p. 54). It chose not to review or evaluate specific financial programs--guaranteed loans, Basic Educational Opportunity Grants, state budgets for public colleges and universities. Rather the commissioners chose to devote considerable time and effort to "developing a set of broadly-stated objectives for postsecondary education that would serve as a foundation for subsequent analytical work" (p. 53).

The eight objectives outlined by the commission were viewed as providing a fundamental statement of the "national interests" with regard to financing postsecondary education (p. 54). The commission also proposed the eight objectives for postsecondary education in the United States for adoption and as necessary for evaluating alternative financing proposals (pp. 62-63). The objectives chosen were later used to measure the effectiveness in toto of current financing patterns.

The commission saw the achievement of its eight objectives as dependent upon increased financing. It felt this could be accomplished "only with an increase in the present level of financial support (p. 59). The criteria established by the commission were applied to the current postsecondary educational system in an attempt to determine how well postsecondary education was achieving the objectives identified by the commission and to what extent existing financing patterns contributed to the achievement of those objectives. Four of these national objectives were pertinent to our purpose:

> . Student access--each individual should be able to enroll in some form of postsecondary education appropriate to that person's needs, capabilities, and motivation.
>
> . Student choice--each individual should have a reasonable choice among those institutions of postsecondary education that have accepted him or her for admission. (p. 55)
>
> . Student opportunity--postsecondary education should make available academic assistance and counseling that will enable each individual, according to his or her educational objectives.
>
> . Adequate financial resources--should be provided for the accomplishment of these objectives. This is a responsibility that should be shared by public and private sources, including federal, state, and local governments, students and their families, and other concerned organizations and individuals. (p. 56)

The commission estimated that nearly thirty percent of total local, state, and federal expenditures for postsecondary education were directed at the problem of access (p. 134). The major governmental programs listed were: Talent Search, Upward Bound, Basic Educational Opportunity Grants, College Work-Study, and National Direct Student Loans. Besides these major governmental efforts other federal and state programs exercised an impact on access. Public and private institutional efforts, likewise, provide assistance to low and middle income students to gain entrance into postsecondary institutions. All these sources of expenditures are directed at the problem of access. In all, the commission estimated that perhaps as much as half of total public support for postsecondary education is primarily intended to improve access.

The commission subsequently attempted to evaluate the effectiveness of these financial programs in equalizing access by means of comparing access among students by family income, race, sex, and residence.

> One method of measuring access is to compare the distribution of students by income, race, and the other characteristics with the distribution of the college-age population according to these same characteristics. (p. 135)

The specific criterion of measurement used to evaluate financial program effectiveness warrants attention:

> To the extent that low-income students, for example, are underrepresented in the student population, there is reason to believe that the objective of equal access is not being achieved. (p. 135)

This observation led the commission to deduce that the objective to provide equal access was not being achieved. Yet, of all student-related objectives, access was considered the most fundamental. Without access to postsecondary education, "the other objectives, including adequate choice and opportunity, are reduced to empty promises." (p. 151). They further lamented the failure to attain access by stating that the question "of whether or not the postsecondary education enterprise can meet its other objectives, including public accountability, in the absence of real access, is an open one." (p. 151). Although the Commission did not specifically state that the financial programs aimed at equalizing educational opportunity have failed to meet the national objective, the implication was evident.

The commission, we believe, made the egregious error of measuring practical government programs by ultimate ends rather than by their immediate specific objectives. Equality of access, no matter how measured, is an ultimate national long-range objective. Can one say specific government programs have failed because low-income students are underrepresented in the student population? Can one conclude that the objective of equal access is not being achieved because low-income students are underrepresented in the student population? It is unwarranted to use remote or ultimate national objectives to evaluate the effectiveness of specific governmental programs with specific objectives. Had the commission set up instead, a reasonable five year to ten year objective to measure the extent of progress toward equal access, it would have had a more adequate measure to evaluate the effectiveness of the national effort. The commission itself estimated that through the national effort of the last decade, 1.4 million students who otherwise would not have attended had enrolled in postsecondary institutions (p. 136). How then are we to interpret this achievement? Does it not indicate that equality of access was to some extent being achieved? Surely, answers to such questions depend on the measure used to evaluate the effort. Our dissent with the commission is neither in the formulation of ultimate objectives, nor with the facts adduced to show that equality has not been achieved, but rather with the simple measurement process of effectiveness of national efforts as they traverse the long road towards the national goal of equality. We feel that it is an egregious error to use ultimate objectives as norms of effectiveness in place of immediate measurable objectives. Ultimate objectives are essential and serve as guides to specific objectives. They are not, however, proper measures of effectiveness. In short, the ultimate goals are most suitable in the area of measuring the direction not the effectiveness of concrete efforts. Despite shortcomings, however, the report is important for its statement of national goals and its attempt at model building to analyze proposed financial programs.

New Approaches to Student Financial Aid: Report of the Panel on Student Financial Need Analysis by College Entrance Examination Board (CEEB, 1971)

In 1968 the CEEB established a panel, chaired by Allan Cartter, to review the frame of reference of parental responsibility and the College Scholarship Service system. The panel was expected to submit an evaluation and to make recommendations for changes which might make the system more definitive and comprehensive (p. 2)

Sample

The panel reported that extensive effort was devoted to selecting institutions asked to participate in the study of the relationships between student attributes and financial aid practices. The overall purpose of the study was to ascertain institutional goals, admissions and financial aid policies, as translated into action rather than simply as statements of policy (p. 15). Eighty-six of the 130 institutions approached agreed to furnish the information requested. Of the eighty-six institutions, the panel found that forty-seven had unused student capacity. Two important reasons were given for this underenrollment: insufficient financial aid resources and insufficient applicants. Eight public and seven private institutions indicated both reasons. The financial aid officer was found to be predominantly the person responsible for making decisions on individual student application (p. 19). The panel also found:

> The average total aid per enrolled student was greater by $320 at private institutions, increased $78 for every 100-point increase in average Scholastic Aptitude Test (SAT) scores, and increased $7 for every percent increase in the black students enrolled.
>
> These results were generally consistent with the analysis of individual questionnaires: that high-ability students and high tuition costs were associated with increased availability of aid funds and that the average financial aid received did not correlate negatively with parental assets. (p. 12)

The panel referred to George Schelkat's 1968 study to confirm its conclusion that "students from more prosperous families attended higher-cost institutions and as a consequence received as much aid as their less well-to-do counterparts attending low-cost institutions" (p. 21). Another dominant factor in the admission of students to particular institutions was the decision to admit students on their measured ability. In eighteen of the colleges studied, "greater measured ability was significantly associated with grants being a higher fraction of the total package" (p. 30). The panel concluded that ability was generally found to be the most important predictor of the grant component of the aid package, and that grants were being used as a reward for a student's past achievement (p. 31).

Major Findings

A major finding was the consistently negative relationship between institutionally computed financial need and the probability of being offered admission.

> In private institutions, the average effect of applying for aid and having need of $1,000 was to reduce the probability of admission by 7 percent. In the public institutions, the average effect of applying for aid and having need of $1,000 was to reduce probability of admission by 11 percent. (pp. 27-28)

Faced with the consistent result that greater financial need was associated with lowered probability of admission, the panel suggested two possible interpretations: (1) that colleges are limiting the demand on their meager financial aid resources by not admitting some needy students who otherwise would be admissible; or (2) that financial need is a proxy for other characteristics--such as a non-alumni parents, public school background, or out-of-state residency which may be the real cause of the reduced probability of admission (p. 29). The panel concluded that the greater the financial need the less chance one had of admission to higher education. In view of the evidence that colleges frequently deviate from the College Scholarhip Service (CSS) principles, the panel made the following recommendation:

> ... the panel recommends most emphatically that: an institution's aid resources be utilized to the maximum benefit by limiting aid to the amount of need; and by allocating funds, particularly grants, to assure equal access to educational opportunity to students with the greatest financial need. (p. 33)

The panel was especially disturbed by the practice of using grants as a reward for a student's past achievement. As a consequence the poorer student was more likely to have to borrow money and often at a high rate of interest. "Students with great financial need often come from cultures where borrowing is associated with exploitive merchants, so that loans may often be unacceptable to them" (p. 30).

Evaluation of the Panel Report

Insofar as the purpose of our report is concerned the question posed by the panel involves equity. The report's conclusion that students with the greatest financial need have the least chance of admission to postsecondary institutions directly pertains to equity. The acceptance of this conclusion, however, depends entirely on the adequacy of the sampling procedure employed. The panel did, in fact, take great care to ensure a representative sample by considering such factors as size, control, geographical location, academic selectivity, and institutional resources. The eighty-six responding institutions constituted sixty-six percent of a sample of 130 institutions. An indication that the sample was indeed adequate can be drawn from the fact that the eighty-six institutions enrolled just over one half million students--or ten percent of the entire student body of the United States. These students further accounted for about ten percent of the aggregate student financial aid resources. At stake then, is the equity of financial aid in its actual application on an institutional level. The panel would seem to have established adequately the fact of maximizing admissions based on available funds.

One is led to ask whether it is more equitable to admit two students, neither of whom could attend without receiving $500 assistance, or to admit one student who could not attend without receiving $1000 assistance. Clearly the most disadvantaged student would be the most penalized; on the other hand, should two students be deprived of higher education for the sake of one. Nathalie Friedman (1971) found a similar situation in her study of the distribution of EOG funds--which are supposed to go to the most needy--yet only eleven percent of the EOG recipients were defined as "high risk."

According to the Cartter Report, students with the greatest financial need meet the greatest difficulty in being admitted to colleges. Students with better records for past achievement receive aid in the form of a grant more frequently than do poorer students with lesser measured ability. This dilemma poses a delicate policy question for both government and institutions. In a concrete situation, the goals of a particular institution are better served financially by the acceptance of two students in the place of one with greater need. The common good of a postsecondary institution may well dictate such a choice. On the other hand, the national goal of equalizing educational opportunity for all, especially the most needy, is not advanced. Responsibility for the attainment of national goals properly pertains to the national government directly. This responsibility can not be shifted to individual educational institutions. The solution may well be complex, but it does not lie at the door of the local postsecondary institution. What would be the consequences if funds were given to students rather than to institutions directly? This is an alternative to ponder.

Institutional Programs

In selecting institutional programs to be included in this report, we were governed by a plan to present a total national picture of the situation in two-year and four-year colleges and universities. In this manner we hoped to portray not merely the quality of the evaluative research but also something of its content and policy implications. Specifically we selected one pre-college program, a set of four junior and community colleges, and a set of six four-year colleges and universities. Thus we chose the following institutional programs:

Pre-College:	East 1969-1970	*The New York Discovery and Development Program* (CDD)
Junior and Community Colleges:	Midwest 1970	*Developmental Programs in Midwestern Community Colleges* by Richard Ferrin
	West 1973-1974	*The EOPS Study in California* by Thomas Macmillan
	1968	*Salvage, Redirection, or Custody* by John E. Roueche (Four California, one Missouri Program)
	Southwest 1973	*Catching Up*: *Remedial Education* by John E. Roueche and R. W. Kirk.

Four-year Colleges and Universities	East	1972-1973	*Higher Education Opportunity Program* (State of New York)
	National	1966	*Compensatory Education of the Disadvantaged* by W. Gordon and Doxey Wilkerson.
		1968	*Higher Education for "High Risk" Students* by John Egerton
		1968	*What Are We Learning From Current Programs for Disadvantaged Students?* by Robert L. Williams
		1972	*Higher Education and the Disadvantaged Student* by Helen Astin *et al*.
	Midwest	1970	*Admission of Minority Students in Midwestern Colleges* by CEEB

Pre-College

Discovering and Developing the College Potential of Disadvantaged High School Youth by Lawrence Brody and Hank Schenker, 1972

The New York Board of Education contracted the research unit of the City University of New York to evaluate the College Discovery and Development Program (CDD) located in five New York borough high schools. The report covered the program for the year 1969-1970, the fifth year of the longitudinal report. CDD's program objectives were adequately described: to discover and develop the college potential of disadvantaged youth who, without the benefit of intensive and long-range educational support of a special nature, would be unlikely to enter college. The specific objectives of the program were also described: to identify disadvantaged youth who, at the end of the ninth grade, have heretofore been "undiscovered" in their potential for college; to improve their motivation for school work; to develop their expectations for college entrance; and to improve their chances for success in college (pp. 6-7). Although the general and specific objectives were adequately described in general terms, they were not adequately stated in measurable terms. Recognizing the measurable inadequacy of their generally stated objectives, behavorial objectives were established for the sixth year, too late for this fifth year report.

Program Costs

CDD had five sources of funding:

- Office of Education to Board of Education (NY) under Title I of the Elementary and Secondary Education Act for
  - personnel services (staff)
  - equipment
  - materials and other consumable overhead costs
  - research contract with City University

  $ 1,576,868
- High school per capita--regular operating budget of Board of Education on the same basis as all other students. (not indicated)
- College Work Study Grants; U.S. Office of Education to CUNY to pay CUNY college

students assisting in CDD program as tutors, aides, and research assistants. CUNY was obligated to add 20% to each dollar.	$ 112,250
. Allotted by CUNY for SEEK and College Discovery for: . personnel costs . personal services . rental space, overhead, utilities, . material, equipment, and supplies.	$ 200,000
. Upward Bound Grant to which CUNY was obligated to add matching funds, totalling $14,859.	74,794
TOTAL	$ 1,963 912

The CDD program included 544 participants at $3,610 estimated average cost per student. The $3,610 cost was in addition to the per capita cost alloted by the Board of Education for each student per annum. In comparing the CDD program to the other two pre-college programs, we see it is the most costly per student:

. College Discovery and Development -	$3,610.00
. Upward Bound	$1,140.00
. Talent Search	$ 24.00

The figures for Upward Bound and Talent Search are from the General Accounting Office (1973) evaluation report to Congress (p. 28). Talent Search is not as comprehensive in scope as the other two programs. It was designed only for counseling and motivation of low-income students with high potential and adequate performance to complete high school and enroll in postsecondary institutions. (p. 28)

Level of Achievement Prior to Admission to CCD

The achievement of the student prior to his or her entering the CDD program was based on eighth grade average; mid-year ninth grade average; Metropolitan Achievement Test scores; and the number of days absent during the fall semester ninth year. The authors saw the limitations of such measures and pointed out that while most students took the Metropolitan Achievement Tests about the middle of their ninth year, some students took these tests at other times. In addition, the conditions of testing might not be identical for all students because CDD Class V students came from a large number of different junior high or high schools in New York City. Eighth and ninth grade averages were based on teacher ratings. These ratings can reasonably be expected to vary even more widely among schools than standardized test administration and scoring.

Tabulating means and standard deviations of the eighth grade general average and mid-year ninth grade general average of CDD V students and presenting these for each center separately, the authors found on the average, that students obtained an eighth grade average of about 77 and a mid-year ninth grade average of about 76. The grade-level performance of CDD students on the Metropolitan Achievement Tests was: vocabulary (mean score: 9.27) paragraph meaning (mean score: 9.28); problem solving and computation (mean score: 7.96 and 7.81). These mean scores indicated that CDD V students were relatively less able in mathematics than they were in vocabulary and paragraph meaning scores on the MAT. Average attendance records showed that CDD V ninth grade students were absent about seven days on the average during the fall semester. Mean scores are rather meaningless to a reader who is not familiar with the rating scale used.

Cautions were given by the authors about interpreting findings in relation to previous achievement. They felt that if one kept in mind the major weaknesses of previous achievement data, one would also be cautious in using these findings for decision making.

Academic Performance of CDD Students

To determine whether students of the five centers differed significantly from each other with regard to the means of previous academic performance, a one-way analysis of variance was performed on each indicator, using the centers as the independent variable. Significant variation between centers was demonstrated for mid-ninth grade general average, Metropolitan Achievement Tests, and ninth grade absences. No significant variation between centers was found for eighth grade general average.

Small Sample Jeopardized Comparisons

Before presenting data on academic attendance and performance for CDD III, IV, and V, the authors again warned the reader of their poor methodological techniques:

> Caution must be observed in making inferences from the results of the comparisons between CDD and Control students. The students in Control groups are academic students selected at random from each of the five Developmental Centers. They are not comparable in socio-economic background to CDD students. Therefore, these groups should not be considered "control groups" in the traditional sense. Their performance might be taken as a "norm to be equaled or approached by CDD students since the Control students represent a sample of the population who would typically go on from high school to college. (pp. 53-54)

Tests of significance (CDD III versus Control III and comparisons between centers) were made. But the sample was too small in some of the areas to be reliable. Even if population differences did exist, the probability of detecting them was small. Regents examination grades were included as part of the spring semester data on academic performance. Results were presented under different subject areas: mathematics, science, and so forth.

High School Graduation and Admission to College

In 1967, 311 students entered the College Discovery and Development Program as sophomores (CDD Class III); 64.6 percent had graduated from high school by January 1971. Academic diplomas were awarded to 108 students, 53.7 percent of the graduates; general diplomas to 93, or 46.4 percent of the graduates (p. 88). Of the graduates, 97 percent of 201 graduates were accepted by postsecondary education institutions. Of these 195 accepted students, 153 (76.2 percent) entered CUNY and forty-two students (twenty-one percent) entered state or private colleges. Six of the graduates were not known to have entered a postsecondary institution.

No information is given concerning the thirty-six percent who did not graduate. Taking college entrance as a measure of effectiveness, the CDD III program must be regarded as effective on the assumption that none of these students would normally have gone to postsecondary institutions had they not participated in the CDD program.

The admission of 153 CDD III graduates to CUNY, however, is hardly an effective measure to CDD effectiveness. CUNY adopted its open admissions policy in 1970. Furthermore, in evaluating college progress, difficulty was encountered obtaining data on the success and perservance of CDD graduates.

College Progress of CDD I Students

CDD I, the first group of students enrolled in the tenth grade in 1965, had completed two years of college in June 1970. The college performance of these students was summarized in the report in terms of the following measures: grade point average (GPA); the number of credits attempted, earned, failed, passed, and the number of courses attempted from which the student withdrew or failed to complete. Information concerning these measures was presented by semester for each of the following variables: college entered, CDD center graduated from, high school average, age, sex, ethnic group, and type of high school diploma.

Of the 250 students who were known to have entered college, forty-nine (19.6 percent) were assumed to have withdrawn during the first semester since no college performance data was available for these students. The remaining 201 students who completed their first semester's work formed the sample for the authors follow-up study. (p.119) The mean GPA for all four semesters of college for CDD I students was 1.75, a little less than a C. The overall mean grade point average after one semester in college was 1.58, the equivalent of a D+. By the end of the second year, or four semesters of college work, this average had increased to 2.13, a little better than a C. (p. 123).

Evaluation of CDD

Many misgivings arise about the evaluation of the effectiveness of the CDD program. Did the program make a difference? Because no measure of lack of basic skills was taken (apart from the counselors decision that these students needed CDD, and that they came from low socio-economic backgrounds), no basis for showing that CDD made the difference was possible. What was the significance of average mean scores of a certain group at a particular center? And do the Regents examinations in any way indicate the effectiveness of CDD when there are no terms of comparison with non-CDD students? Can high school graduation and admission to college be used as measures of effectiveness for CDD? Obviously the design of the evaluative study precludes any positive or negative judgments regarding the efficiency, equity, and effectiveness of the program. In evaluating their program, the authors used high school graduation and college admission as measure of effectiveness.

No indication of the effectiveness of CDD is evidenced by the fact that the students graduated and entered college. A more precise indication of program effectiveness would be possible if a reliable needs assessment of basic skills and motivation were made. Furthermore, many reservations remain regarding the control group against which the achievements of CDD III were measured. In our judgment, the evaluation did not establish or truly measure the effectiveness of the program, which cost nearly $4,000 per student.

The CDD program could not be proposed as a national model pre-college program for the disadvantaged. If any elements were effective, none were identified. And, the program was extremely expensive per student. In sum, the evaluation design is defective for lack of needs assessment and quantified objectives for motivation and acquisition of academic skills and a lack of control or comparative groups to give meaning to results.

In their final summary the authors did introduce incidentally some outside comparative terms but only in the case of college achievement of CDD I students with students from the SEEK and College Discovery Prong I and regularly matriculated students. However, lack of data concerning both SEEK and Prong I limited comparison to the first semester's college academic performance. Whatever the validity of comparisons of this type for evaluation purposes, at least they help to give some meaning to mean scores. What was brought into the summary of the report as a point of interest "it may be of interest to compare..." (p. 146) ought to have been essential to the very design of the evaluation. The absence of parameters made the findings difficult to interpret as evaluative measures.

Junior Colleges

Medsker and Tillery, Programs for Equalizing Educational Opportunities at Junior/Community Colleges (1971), report that approximately one-third of all students entering college in the United States are doing so through the "open door" of junior colleges. In 1900 there were eight such colleges, with an enrollment of one hundred students. In 1972, according to the American Association of Community and Junior Colleges, there were 1,141 community colleges with a total enrollment of 2,866,062 students (1973 p.7).

John E. Roueche and R. Wade Kirk (1973) maintain that the reason many disadvantaged students enter community colleges is precisely because of open door policies. Students who once might never have envisioned themselves going to college, are now doing so in large numbers. Roueche and Kirk state that eighty percent of college-age young people in California enter higher education through the doors of community junior colleges as do fifty-four percent in Illinois, fifty percent in New York, sixty-nine percent in Florida, and almost fifty percent in Texas (p. 3).

William Moore,Jr. (1970) observed with dismay that an ever-increasing number of these students were marginal:

> The most significant change in the enrollment pattern of community colleges, however, has been the unparalleled increase in entry of marginal students in the group who are able to take advantage of the open-door character of the two year school. (pp. 4-5)

Salvage, Redirection, or Custody? by John E. Roueche, 1968

In 1968, John E. Roueche published a study on the effectiveness of remedial education in community junior colleges. He defined the low-achieving students in community colleges as those students who suffer from one or other of the following characteristics;

> Graduation from high school with low "C" or below;
>
> Severe deficiency in basic skills--language and mathematics;
>
> Poor study habits (probably poor study environment at home);
>
> Weak motivation, lack of home encouragement to continue school;
>
> Unrealistic or ill-defined goals;
>
> Coming from homes with minimal cultural advantages and minimum standard of living;
>
> The first of their family to enter college-hence a minimum understanding of what college has to offer and what it requires. (p.vii)

In his attempt to study the effectiveness of programs aimed at students with the above characteristics, Roueche found very little evaluative data. He states;

> No national figures are available that reflect the millions-of-dollars effort at remediation by the nation's community colleges. Perhaps more important, there is little research to indicate whether or not such an effort is successful. (p. viii)

The author set out to present and evaluate the situation as it existed in 1968. However, he did not personally investigate or evaluate remedial programs, but depended on descriptions and summary evaluations or progress reports. Consequently the work contributed little to evaluative research. Clearly the findings were no more sophisticated than his original sources. The investigation might better be described as a summary of the literature rather than an evaluation of programs.

Methodology

Roueche used the same methodology and followed in the footsteps of Gordon and Wilkerson (1966) and Egerton (1968) who had chosen certain college and university programs and briefly described them. Roueche found a California state survey of remedial students in community colleges to show that of the 270,000 freshmen who entered California's public junior colleges in 1965, almost seventy percent (190,000) failed the qualifying examination for English IA, or the equivalent transfer course. Other findings included:

> That out of 60,500 students enrolled in California public junior college mathematics in the fall of 1964, three out of four students were taking courses offered in high school.
>
> Forty to sixty percent of the students enrolled in remedial English classes in California public junior colleges earned a grade of D or F. Only twenty percent of the students enrolled in these remedial courses later enrolled in college credit courses.

Before focusing on his own selected colleges, Roueche cited the research done by Paul Roman who made a survey of the types of courses offered in California junior colleges. Roman found that colleges recognized the importance of reading ability in all areas of college work. The emphasis in remedial reading courses was on improving basic skills, including those of word recognition, eye span, speed of comprehension, retention, and phonetics. In some remedial reading courses, practice was afforded in scanning, finding essential ideas, idea associations, drawing inferences, analysis of reading defects, vocabulary work, and critical reasoning. Twenty-four of the colleges surveyed offered remedial mathematics courses. Eleven of the institutions offered some type of course in the social sciences, which included history, sociology, or political science. Only five of the thirty-five colleges surveyed offered remedial courses in the area of business (pp. 26-27).

After presenting Roman's survey findings, Roueche chose five compensatory programs for study because they were unique in that they offered what he considered total programs. Each of these five programs had defined goals and to some degree had evaluated them: Program Opportunity at Bakersfield College; Compton Junior College Program in South Central Los Angeles; Contra Costa Junior College; Los Angeles City College Program; and Forest Community College Program (St. Louis, Missouri).

The kind of evaluation called for today is based on measurable objectives. Evaluations which indicate only the services to be provided or resources to be committed are unacceptable. Roueche points out that the programs were chosen for consideration because they had defined their goals and had actually written up their programs and, to some degree, evaluated them. In his own evaluation of the selected programs he merely lists the objectives, the identification process; he states what the program consists of and gives the characteristics of the students in the program in terms of their test scores and IQ's.

Bakersfield College: Program Opportunity

Bakersfield College found that students with low academic potential impeded the progress of regular college credit courses. Program Opportunity, Program O, a one-semester program was designed to alleviate this problem. The objectives of Program O were: to identify, as soon as possible, students of low academic potential or achievement; to provide opportunity for these students to repair deficiencies and to demonstrate that they can do college work; to remove the students who need remedial help from regular college classes in order that the progress of regular students would not be impaired; and to eliminate early those who could not succeed in regular college classes.

Students were identified on the College Ability Test (SCAT) and an English classification test. Students scoring below approximately the tenth percentile on the tests were required to enroll in Program O classes. There were three Program O classes. If a student failed to maintain a 1.5 grade point average during his first semester of attendance, he was subjected to dismissal from college. He had to earn a grade of C or better in the remedial classes to which he had been assigned before progressing to the next level of instruction.

The data showed the number and percentage of Program O students who were considered good prospects for entering the regular college program for the second semester. The percentage of students who received permission to register for the spring semester increased steadily from 1958 through 1965; there being only twenty-eight students in 1958 and sixty-three in 1965. In short, a greater percentage of students who began Program O persisted. Roueche stated that two factors identified by the college account for this marked increase: a more effective individualized program of counseling Program O students and a more effective Program O instructional program, developed and modified after years of research on the program. Roueche did not give information for these conclusions or any of the research data supporting the second statement. He stated, however, that evaluation of Program O had been continuous since its inception.

Research at Bakersfield College on the effectiveness of its program had led to the following conclusions:

> - Approximately thirty percent of the students who enroll in any Program O class will receive a grade of C or higher.
> - Ability is only one of the critical criteria of success with this group. However, an I.Q. of ninety or above is positively correlated with success of Program O.
> - The program is highly dependent upon sensitive and competent counseling and instruction. (p. 30)

Roueche did not evaluate Program O on the basis of the program's objectives, but he did use the institutional research findings. It appeared that the end result of Program O was that approximately thirty percent of the students who enrolled in any Program O class received a grade of C or higher. Apparently the seventy percent who did not achieve a C average were dismissed. Consequently, the fourth objective of the program, to eliminate early those who could not succeed in regular college classes, was also attained!

Although Roueche did not directly evaluate Program O, the institution may have had sufficient evaluative research of its own objectives. The research by the institution seemed to indicate that Program O had a certain utility for a college with an open door policy. The program for low achievers helped an average of thirty percent of its participants to reach a C level of work; and it identified seventy percent as non-college material.

Nevertheless, there was no indication of whether the program was efficient. Neither was there any indication of the cost per student or unit of outcomes. The program, however, did have a built-in self-evaluation component. In other words, the program seemed a good one--but how good is hard to say.

Compton Junior College in South Central Los Angeles

Early in 1963 Compton sought ways of developing a program which would provide basic education in addition to job training. The program was designed to take the students at their educational level, discover their strengths and weaknesses, analyze their potential, and place them in learning situations where they not only had a chance to succeed but where they could also develop their capacities for useful citizenship.

To measure their educational level, all students enrolling at the college were required to take placement examinations, the SCAT, and the Purdue Placement Test in English. Students were then placed in the following categories:

Level I: 89 and below on the Purdue and ten percent or below on the SCAT total score

Level II: 90-119 on the Purdue and 11-39 on the SCAT

Level III: 120 and above on the Purdue and forty percent and above on the SCAT (p. 32).

Roueche did not include any statement of the expected end results of each level. Instead, each level was described in terms of the number of units a student was permitted to take each semester and whether students were given an opportunity to transfer to associate degree programs or qualify for English 31A and eventual transfer to a four-year college program (pp. 32-33). There was not enough evidence to show that the program was effective, efficient, or equitable.

Contra Costa Junior College

The program developed at Contra Costa Junior College was a tutoring program to determine the effectiveness of tutoring as a means of meeting the needs of its low achieving students. Remedial students were tutored in reading, writing, and mathematical skills. Roueche included a description of the tutoring program administration, selection of tutors, and their training and orientation. At the time Roueche chose to select this program for evaluation, there was no report on the program nor on its success in meeting its objectives.

Los Angeles City College

The objectives of the Los Angeles City College experimental program for remedial students were to:

> - Obtain information about the "low-achieving" student to see if some characteristics could be found which would identify the "salvagable" student.
> - Identify methods and techniques of teaching and counseling which would make it possible to remedy the disadvantage of the student in one semester.
> - Impart to the student those skills and that knowledge which would aid him in finding a place for himself in society. (p. 37)

Initially the experiment consisted in enrolling sixty-four students who had scored below the eleventh percentile of the national college norms on the SCAT in the spring of 1964. After the program was in progress for a year, the group decided that the program should be moved out of the experimental stage and into the operational phase, its members being assured that the program was benefiting the students enrolled and simultaneously facilitating the maintenance of high quality education and scholastic standards (p. 37). Roueche did not substantiate why the group members "were sure that the program was benefiting the students." Nor did he give data to show why the major policy decisions were more viable: for example, why the administrative control of the program shifted from the counseling center to the joint supervision of the dean of instruction and the dean of student personnel; or why the program should be operated within the framework of already existing departmental structure; or why the primary focus of the program shifted from remediation to general education. It appears that these changes were made on the basis of group feelings and opinions about the experimental group program, rather than on empirical evidence. Roueche included Los Angeles City College experimental program for evaluation, but again his evaluation was to be based upon institutional data and the institutions did not have its evaluation completed in time for him to utilize it.

Forest Park Community College

In 1964, a survey of the Forest Park Community

College, in St. Louis, discovered that forty-six percent of the enrollment was experiencing academic difficulty: 278 students were forced to withdraw and 318 were on academic probation. Another 180 had either withdrawn officially or had stopped coming.

Two curricular patterns (A and B) were designed to improve this situation. Pattern A included economics and modern math; Pattern B included sociology and biology. Both patterns included English literature, communication skills, and counseling. The curricular arrangements were designed to give remediation in basic writing skills and math skills and to develop greater breadth in general education. Sixty-seven students were randomly assigned to Pattern A and sixty-eight to Pattern B. Five staff members were assigned to each Pattern.

During the first semester a student spent an average of six hours per week in a learning laboratory. The program followed a pre-test and post-test evaluation model. Testing results showed significant development in all areas of remediation, although the meaning of "significant" was not clarified.

Program Survey Findings

Roueche concluded from the survey of these five programs that "a total program approach to the low-achieving student appears to have greater facility and potential for dealing with the complexity of the problem" (p. 40). While sympathetic to Roueche's assumption about the effectiveness of total programs, the evidence added from the five programs chosen for evaluation hardly empirically verified his intimation. Roueche began by stating, "Few institutions have bothered either to describe or evaluate their programs for the low-achieving student. Intuition, rather than research, appears to be the basis for most remedial programs" (pp. 41-42). The situation was not greatly improved after his own special efforts.

Developmental Programs in Midwestern Colleges. Higher Education Surveys by Richard Ferrin and Carroll Cotten, (1973)

The Midwestern Committee for Higher Education Surveys published the fourth of its series on Midwestern community colleges and their developmental programs. The study was conducted under the direction of Richard Ferrin and Carroll Cotten.

A questionnaire, sent to 180 institutions in the Midwest, was designed to obtain information on three distinct areas: remedial courses within the departmental structure; academic skills services; and developmental programs specifically organized to include a range of educational services for students formally enrolled in these programs. Seventy-five percent of the returns were usable.

Enrollment in the 180 colleges had risen fifteen percent from 1959 to 1970, reaching over a third of a million students. Approximately ninety-two percent were white; 6.8 percent were black; and 1.0 percent each were Spanish-Americans and American Indians. Forty thousand students were involved in some form of developmental education in the Midwestern community colleges. Remedial courses involved more disadvantaged students than did academic skills services and developmental programs combined in both 1969 and 1970. The enrollments in these last two, however, were growing faster than those of remedial courses. One in five students enrolled in a formal developmental program was a minority student; one in nine students enrolled in remedial courses represented a minority.

Unlike remedial courses, formal developmental and academic skill services were newcomers to Midwestern Community Colleges. Eighty percent of all institutions reported that they had remedial courses for more than three years and fifty percent had academic skill services. Only two-thirds of these had had them less than three years. Formal developmental programs, as they were defined in this report, came into being in the spring of 1968. Less than thirty percent of the Midwestern institutions had such programs.

The primary function of remedial courses was to give academic assistance to students in order that they may be better prepared to take certain regular college courses. Academic skills services and developmental programs had a variety of functions:

- eighty-four percent provided tutorial help in basic skills;
- larger program provided academic and non-academic counseling assistance in obtaining financial aid;
- formal developmental programs had tutoring and counseling as their primary functions also.

This descriptive study did not give any indication of the effectiveness, efficiency, or equity of developmental programs in these Midwestern community colleges. The objectives of the programs were not stated in measurable terms indicating what the program intended to accomplish in terms of output or impact, nor did they set milestones to measure effectiveness in achieving the objectives. Instead most of the surveys indicated the total number of students participating in the program; the number of minorities to be served; certain processes stressed in the curriculum, such as reading and math skills. The only references to the impact or end results of the programs were given in broad statements, enumerating the statistics on how many completed the program, completed college, or had job opportunities. Despite this deficiency, positive outcomes were reported.

The EOPS Story in California by Thomas MacMillan (1973-74)

The story of the Extended Opportunities Programs and Services in California as told by Thomas MacMillan was one in which he examined the question of evaluating the numerous new community college programs and services which had arisen in response to the needs of disadvantaged youth. As a consequence of the California legislature authorizing resources to provide Extended Opportunities Programs and Services (EOPS) there was a dramatic increase in programs and services for disadvantaged youth. Millions of dollars later, the effectiveness of these programs was not very clear. Table 29 indicates the amount of statewide appropriations.

TABLE 29. STATEWIDE APPROPRIATIONS AND STUDENTS SERVED: 1969-1973

Year	Students Served	Appropriation
1969-1970	13,943	2.9 million
1970-1971	19,725	4.2 million
1971-1972	NA	3.5 million

Source: Adapted from MacMillan (1973) pp. 47-47.

MacMillan asked--as did policy makers and researchers--how effective are programs aimed at disadvantaged young people? He also asked two specific questions:

> What were the conditions and recommendations that first validated the need for EOPS in California's community colleges?
>
> What do you now know about the effectiveness of the EOPS investment in terms of the stated goals of identification, recruitment, and retention in community colleges of students affected by language, social, and economic handicaps? (p. 48)

Before seeking answers to these questions, MacMillan cited a study by Berg and Axtell which reviewed all existing community college programs for the disadvantaged in 1968 and which concluded:

> The almost total lack of evaluative research and the absence of criteria of effectiveness preclude the possibility of making a qualitative judgment about the relative effectiveness of the major approaches to providing equality of educational opportunity for disadvantaged students . . . in the context of the magnitude of the problem, very

> little special effort is actually being made for disadvantaged students in California junior colleges. (p. 49)

A possible reason for this lack of evaluative research, according to MacMillan, lies in the fact that the Program Directors were action-oriented, primarily interested in generating funds, and therefore made no effort to identify common data elements for all EOPS students in community colleges. MacMillan astutely commented that negative reporting was not rewarded. If programs did not report success, they endangered continued funding (p. 51).

A repeated failing, not only in California but also in all parts of the country, was the tendency to report and describe certain processes and resources committed to programs, rather than to analyze program outcomes in light of the total effort exerted to meet the objectives of the program. MacMillan identified five major ways that evaluative research might become more effective by providing:

- Specific and extensive comparative data showing similarities and differences between the target population served by EOPS and the total community college population.
- Specific comparative data showing similarities and differences in persistence and academic achievement for EOPS and the total community college population.
- Specific analysis of individual program strategies to ascertain which combination of aid and service yielded the highest return in persistence and performance.

- Specific comparisons of certificate, associate degree, and transfer performance of EOPS and non-EOPS students. (p. 52)

The first evaluative report of EOPS was submitted to the Board of Governors on February 17, 1971. MacMillan cites the following aspects of this and subsequent reports:

Students served: 19,975 the first year 1969-1970
33,700 1970-1971

Minority enrollment: (Comparison figures 1969-1972)

Mexican-American	+40%
Blacks	+47%
American Indian	+80%
Other non-white	+33%

The total enrollment increased 20% in community colleges in California.

Success of students: (during first year)

8.5% retention rate (during first year)
2.27 mean GPA (during first year)
5,300 EOPS students achieved Associate degree or certificate
16% completion rate (during first two years)

Validation:

Figures on persistence and performance were validated over the three years of funding.

Service components:

Peer advising and counseling appear to be the most dynamic and effective component support services.

Although the data on persistence and performance were validated, the statement regarding the effectiveness of the service components was based on perception.

The author concluded that "the absence of evaluative research still persists." In terms of portraying the real impact of EOPS achievements against a backdrop of student characteristics or community data, we are no better off in 1973 than in 1968" (p. 51). However, MacMillan concluded that colleges in California have changed measurably and visibly as a result of the investment in EOPS in 1968.

Catching Up: Remedial Education by John E. Roueche and R. Wade Kirk (1973)

Writing in 1973, John E. Roueche and R. Wade Kirk lamented the fact that although in recent years there had been national, regional, and state surveys on remedial types of programs for the disadvantaged in community colleges, evaluations of their effectiveness were still lacking (p. 9). Accordingly, Roueche and Kirk aimed to fill that gap by producing Catching Up: Remedial Education, a published version of their report submitted to ERIC in 1972.

Five community college programs were chosen for evaluation: Tarrant County Junior College (South Campus), Fort Worth, Texas; El Centro College, Dallas Texas; San Antonio College, San Antonio, Texas; Southeastern Community College, Whiteville, North Carolina; and Burlington County Community College, Pemberton, New Jersey.

Descriptive data were gathered from two sources: the available written materials, college catalogues, student and faculty handbooks, program evaluations, course descriptions; and interviews with program directors, counselors, and faculty members. Roueche and Kirk used three variables to measure the effectiveness of the programs at these colleges: achievement, persistence, and student attitudes toward the program. As indicators of these variables, the following were used:

> Persistence was measured by the number of semesters completed by full-time students subsequent to initial semester enrollment. An exception was made for the 1971-1972 academic year when enrollment for the second semester became the criterion for determining persistence.
>
> Academic performance was determined by the mean GPA of a group of students for a given semester or the cumulative GPA at selected intervals.
>
> Attitude was measured by the degree of satisfaction of students enrolled in the program with: counselors and counseling, and instructors and instruction. Both measures were combined to give a measure of overall satisfaction with the program. (p. 48)

Students ranking in the lower half of their high school graduating classes were most often identified as low achievers. For the purpose of their survey, Roueche and Kirk defined low achieving students as those "who, for whatever reasons, are assigned to remedial or developmental courses in the community junior college" (p. 13).

The authors found by reviewing literature that the teachers of remedial programs were often less experienced than regular teachers; not well-prepared for teaching their subjects; afraid of being identified as non-college level teachers; and lacking in a knowledge of the objectives of their courses, except in a vague manner. This finding was consistent with the conclusions of others who reviewed remedial programs.

According to Roueche and Kirk, the objectives of remedial courses are often not clearly defined. Some objectives were concerned with remedying deficiencies; others, on the other hand, pertained to "cooling out," situations where the students began to realize their chances and realistically chose those courses they knew they would be able to complete. There was no clear-cut agreement on what the major purposes of remedial courses should be.

Students identified by the five community colleges as potentially low academic achievers in the fall school terms of 1969-70, 1970-71, and 1971-72, constituted the population from which the subjects were randomly selected. To obtain a homogeneous group, all students who had a composite score of sixteen or better on the American College Test (ACT) were eliminated. At Southeastern Community College the total program population was the sample because it was small.

In order to compare the persistence and academic performance of high risk students enrolled in remedial programs with those of comparable students enrolled in non-remedial and regular classes, control groups were formed at three of the colleges during the 1971-72 academic year. At two of the colleges all low achievers were placed in remedial programs and therefore no control group was obtainable.

The 1969-70 students were chosen for this study as there was sufficient time for most of these students to graduate or complete a program. The 1970-71 students formed a comparative group. Group mean scores were used to determine program effectiveness; these and other data were obtained from students' permanent records and grade printouts (pp. 50-51).

In the evaluation of the Roueche and Kirk study, serious errors were detected in both the sampling procedure and the research design, and these errors detract from the internal validity of the entire study. Students were self-selected into the program and from these the directors made a further selection on the basis of the student's desire to obtain an associate degree. Only in the Southeastern Community College Program, an experimental program, were potentially low-achieving students randomly assigned to the program and compared with a randomly assigned group in the more traditional approach to instruction.

During the third semester when the program students took mostly regular courses, there was general underachievement (below C), which was interpreted by the authors as "reentry shock" (p. 57). An alternative hypothesis could have been considered namely, that program teachers were inflating their students' grades in comparison with the grading in other courses. Such an alternative hypothesis would undermine the "reentry" theory, and eliminate the greater persistence rate of students in the program, compared with comparable students in the regular programs, as a proof of program effectiveness. Even though the chi-square test of significance rejected the null hypothesis, the statistical test of significance should not be interpreted as programmatically significant. Further, there was a bias in favor of the South Campus program due to selectivity. Finally, the overall self-selection in group assignment made the comparative design defective.

Although Roueche and Kirk showed that these new programs focused in on improvement of self-image, no test was made to show to what degree improvement could be attributed to the new approach, if at all. Neither was the degree of improvement verified.

Roueche and Kirk used student perception as the basic measure of the success of the counseling program and its effectiveness. Results were ambiguous and difficult to interpret. Furthermore the use of student perception was a highly questionable method of evaluating the impact of a counseling program. The authors additionally emphasized administrative support. "It is impossible to minimize the importance of presidential and staff support in producing effective programs. Administrative leadership may well be the most important factor in the design of programs for non-traditional students" (p. 75). While not defining what was meant by institutional commitment, Roueche and Kirk appeared to mean financial and verbal support. The conclusion, however, that "One might even surmise that is precisely the college's commitment to and investment in such a program that makes possible good educational returns" (p. 75) was more a rhetorical plea than a scientific conclusion.

Having assumed that they had established the effectiveness of remedial programs in these five colleges, the authors proceeded to identify the components in the program which were responsible for the assumed success. The first component cited was the new type of instructor, an "honest and open human being," a volunteer teacher. They stated that five years previously the instructors of low achievers were the non-tenured and inexperienced who were forced to teach the remedial courses because the tenured and experienced teachers had chosen advanced and specialized courses (p. 62). Their conclusion, however, that the new faculty were more effective or better teachers was not substantiated by their research nor did it follow from the study.

It was impossible for Roueche and Kirk to identify from their research design that a given instructional method was responsible for the assumed success, for "no single instructional method was common to all the programs surveyed" (p. 66). They found certain differences from the "traditional" methods and assumed that these were the sources of success. Their research did not permit this conclusion. It would have been better for the authors to have put forward their conclusions as possible explanatory hypotheses. It was not established by this research, for example, that "audio-tutorial instruction," "packaged programs," non-competitive and non-paced individualized learning, peer tutoring, and the supposed use of measurable objectives were more effective than traditional methods.

Roueche and Kirk concluded their study with eleven recommendations which were either tautological, self-evident or questionable but certainly not empirically verified by their study.

- The community college should emphasize and work to achieve its goal of serving all students in its community.
- Only instructors who volunteer to teach non-traditional students should ever be involved in developmental programs.
- A separately organized division of developmental studies should be created with its own staff and administrative head.
- Curriculum offerings in developmental programs should be relevant.
- Regular college curriculum offerings should be comprehensive.
- All developmental courses should carry credit for graduation or program certification.
- Instruction should accommodate individual differences and permit students to learn and proceed at their own pace.
- The counseling function in developmental programs must be of real value to students.
- Efforts should be made to alleviate the abrupt transition from developmental studies to traditional college curricula.
- Once programs are established, effective recruiting strategies should be developed to identify and enroll non-traditional students.

Although these recommendations may be true to some extent their validity was not empirically established by the study.

Four-Year Colleges and Universities

Compensatory Programs in the U. S.

One of the first national surveys of compensatory education programs in the United States was conducted by

Edmund W. Gordon and Doxey A. Wilkerson and published in 1966 under the sponsorship of the College Entrance Examination Board, entitled Compensatory Education of the Disadvantaged. After dealing with compensatory programs on the primary and secondary levels, the authors give a brief survey of programs in higher education where they felt more effort was being exerted than on the lower levels.

> Current efforts to identify potentially able Negro and other socially disadvantaged youths and to help them go through college probably constitutes one of the most dynamic trends in American higher education. And they involve a much larger proportion of the collegiate institutions than the proportion of public school system involved in compensatory education on the elementary and secondary school levels (p. 122).

Gordon and Wilkerson observed only a few colleges, such as Berea College in Kentucky, serving the Appalachian youth; Oberlin College in Ohio; and one or two colleges in the East; which, in addition to the vast majority of black colleges in the South, had been giving special assistance to the disadvantaged prior to 1960. These were the exception. The mainstream of higher education showed little or no concern for youth with educational handicaps.

> Prior to 1960, the literature was almost wholly barren even of discussion of higher education for the disadvantaged; only in the past three or four years has there developed a trend toward doing something about it (p. 122).

Gordon and Wilkerson paid tribute to the National Scholarship Service Fund for Negro Students for anticipating the trend.

Survey Sample

In 1966, the vast majority of higher education institutions did not have compensatory programs. In an effort to identify the colleges and universities with such programs, Gordon and Wilkerson sent a six page questionnaire in the spring of 1964 to the 2,093 institutions listed for the fifty states and the District of Columbia, in the United States Office of Education, Directory of Higher Education for 1962-1963. Responses were received from 610 institutions of higher education, representing 28.6 of the population. An analysis of the returns indicated that they adequately represented many aspects of the population of institutions, according to size, type, and state. Institutions offering doctoral programs were overrepresented and junior colleges somewhat underrepresented.

Of the 610 institutions responding, 224, or thirty-seven percent, stated that they were conducting a variety of compensatory programs which involved the following components: special recruiting and admission practices, financial aid, pre-college preparatory courses, remedial courses, special curricula, counseling, tutoring, and other practices. However, sixty-three percent (386) had none.

Despite the good will of institutions, increased special admissions programs and special assistance programs had not kept pace. Gordon and Wilkerson further cautioned that there was no way of knowing whether programs reported were specifically designed for disadvantaged students or were part of a college's general counseling or remedial efforts. The burgeoning of pre-college preparatory programs, however, in the summers of 1964 and 1965, represented a notable shift of emphasis. The authors cited special efforts made to help the talented, disadvantaged black student. Bowdoin College (Maine) inaugurated Project 65 aimed at bringing sixty-five black students to the campus by the fall of 1965; the eight Ivy League and Seven Sister Colleges admitted 468 black men and women to their freshman classes in the fall of 1965, more than double the number admitted the previous fall and about three percent of the total admitted. The Cooperative Program for Educational Opportunity undertook joint efforts involving the fifteen institutions in the East to recruit talented black students. This organization was chiefly responsible for the 1965-66 increase in black students in the Ivy League and Seven Sister Colleges. Similarly, the College Assistance Program, sponsored jointly by NSSFNS and 110 institution aimed at assisting disadvantaged youth to college. It consisted of regional groups of admissions and scholarship officials who visited black institutions usually overlooked, seeking to uncover talent and refer individual students to the right college for them. Other major universities made special efforts to recruit black students. Duke University, supported by the Ford Foundation, sought the academically disadvantaged talented Negroes; the University of California allotted $100,000 in matching funds for talented disadvantaged youth. It was noticeable, however, that the prestigious universities were seeking "talented" disadvantaged youth. Few were taking students who were academic risks.

The University of Michigan began its Opportunity Award Program in 1964; Cornell University began a financial aid program for underprivileged students; Kansas City Special Scholarship Program admitted twenty-two percent of its freshman class from below the sixtieth percentile and forty-five percent below the eightieth percentile (p. 138). Several Foundations cooperated with the effort to assist disadvantaged youth to college: Ford Foundation in 1964 granted $7 million to the National Merit Scholarship Corporation directly aimed at black students; the Sloan Foundation granted $500,000 to support a program of scholarships in ten Southern black colleges; the Rockefeller Foundation and the Carnegie Corporation--and others--became similarly involved. Largely from their own resources, a number of universities set up financial aid programs for the American Indian. These included the University of Minnesota, the University of South Dakota, the University of Arizona, Fort Lewis Agricultural and Mechanical College in Colorado, and the University of Alaska. Grossmont College, California, provided special scholarships for Mexican-Americans, Asians, and American Indians.

In their evaluation of these compensatory programs, Gordon and Wilkerson had little empirical data upon which to base their judgments, apart from the subjective evaluations of the institutions involved. They issued a warning, little heeded by program evaluators in the past eight years. The authors felt the appropriateness of a practice or the success of a program could not be adequately judged from the enthusiasm with which it was embraced or the speed with which the practice spread. They stated:

> Educational innovation, unfortunately, has too long a history of approaching evaluation and decision making on such an inadequate basis (p. 156).

Their recommendations for program evaluation are still timely.

> At the very least, evaluation of compensatory educational practices would seem to require a precise description of the newly introduced educational practices, of the specific conditions under which they are initiated, and of the populations to whom they are applied;

> the careful identification of target populations and of appropriate control groups for whom specified criterion measures are established; and the collection and analysis of data appropriate to the measures identified (p. 156).

It is dismaying that in 1974, almost ten years after Gordon and Wilkerson's survey, specified criterion measures are not yet well developed. In 1964 "Despite the almost landslide acceptance of compensatory education commitment," Gordon and Wilkerson found nowhere an effort at evaluating these innovations that approaches the criteria suggested (p. 157). Moreover, where evaluative studies had been conducted, the reports typically showed ambiguous outcomes affecting amorphous educational and social variables (p. 157). Gordon and Wilkerson further deplored the fact that these unhappy circumstances were likely to encourage premature and contradictory planning and decision making. Our current review of evaluative efforts concurs with these observations especially with the inadequacy of a data base, lack of specified criterion measures, and lack of evaluative efforts based on a sound feedback system.

Because Gordon and Wilkerson's descriptive study of compensatory programs on the primary, secondary, and higher education levels was one of the first national surveys of programs, it will remain important as a point of comparison for later studies. The sample was biased in favor of large universities and against junior colleges, but within the limitations of these biases, this work provided an informative overall picture of efforts to help the disadvantaged student around 1965. No attempt was made to evaluate these innovations for no data was available. Nevertheless, the Gordon and Wilkerson study became the model for many supposedly program evaluative studies. Few paid heed to their suggestions for evaluation of compensatory educational practices.

Higher Education for High Risk Students by John Egerton, 1968

In 1968, John Egerton made a national survey of compensatory programs. He defined "high risk" students as those who lacked money, had low standardized test scores, erratic high school records, and whose race/class/ cultural characteristics placed them in a disadvantageous position in competition with the number of students in the college which the disadvantaged student wished to enter (p. 7).

Sample

Egerton sent questionnaires to 215 selected colleges and universities, thirteen percent of the nation's institutions in this category. No reason was given to justify the selection of colleges and universities, Of the 162 institutions responding to the questionnaire, eighty-six reported some measure of involvement in what could be considered high risk activity. Only twenty to twenty-five utilized the resources available to them and ten were exploring new channels for assisting disadvantaged high risk students.

Validity

Egerton drew general conclusions from the responses and included a more detailed description of twelve public universities. The non-representativeness of the sample, the subjective nature of the responses, and the subjective criteria of evaluation of effectiveness rendered the internal validity of the responses questionable and jeopardized the external validity by preventing valid generalizations regarding apparently successful components. It should be noted that the lack of validity did not mean lack of truth, but simply that the empirical data did not warrant generalizable conclusions. Likewise, the descriptions of individual programs had little scientific validity as a basis for general conclusions regarding effectiveness, efficiency or equity. There was, however, a certain historical usefulness in the information collected on each college.

Findings

Sixty percent of the responding public institutions reported no high risk programs of any sort, while two-thirds of the private institutions indicated some involvement. Responses from major public universities, most of them land-grant institutions, showed that almost three-fourths of them had no high risk activity. In seventeen Southern and border states, eighteen of the twenty senior state universities in the survey returned questionnaires but only two of them, West Virginia University and Virginia Polytechnic Institute, reported anything resembling a program for high risk students (p. 13).

Egerton concluded that the bright and able student who could not afford to go to college--whether he was black, white, Indian, Spanish-speaking, or whatever--was being sought by a growing number of colleges. But, those whose past academic performance was poor represented a risk that very few colleges were willing to take (p. 49). Nor have those institutions which had admitted high risk students resolved the dilemma of what to do for them once the student was admitted. Should they be accorded special attention or should they be treated in the same manner as all other students? Some authorities say high risk students had enough problems to overcome without the stigma of identification as "risks" and institutions which subscribed to this point of view made every effort to keep the students' academic and economic handicaps concealed, sometimes even from the students themselves. The opposite argument holds that students who are genuine risks must be given support that is bound to be visible--lighter class loads, special courses, extensive tutoring, and the like--or their chances for success will be greatly reduced. Egerton found that the risk students themselves had mixed responses to the question of identification expressing at times both resentment and appreciation for either approach (p. 140).

Egerton identified four institutions as having the most outstanding contribution to the education of disadvantaged students: the University of California, both Berkeley and Los Angeles campuses; Southern Illinois University, and the University of Wisconsin. It was difficult to understand on what basis Egerton lauded these university programs apart from subjective evaluation.

Among the programs described in the study, many were so expensive that they could not be nationally replicated. Low teacher-student ratios, one-to-one counseling situations, are costly items--particularly if the institution must rely solely on its own financial resources. Likewise, there was no indication in Egerton's study as to which component achieved what success.

What Are We Learning from Current University Programs for Disadvantaged Students? by Robert L. Williams, 1968

In November 1968, Robert L. Williams published the results of his exploratory study on disadvantaged students. Although replies came from all fifty states, no indication was given of the representativeness of the sample. Consequently, the findings must be regarded as tentative. Williams found that over fifty percent of colleges and universities had some form of special programs for the disadvantaged. Because most of these programs accommodated relatively small groups of students in relation to the size of the institution, he called these efforts "token" at best. It was an irony to Williams that, with the exception of predominantly black colleges, private institutions had evidenced greater involvement in educating disadvantaged students than had public institutions. Williams also pointed out that few institutions were recruiting impoverished ghetto students with serious academic deficiencies (p. 2).

Williams found that four-year colleges and universities were quite selective, and among the criteria most commonly used were:

- some evidence of ability to handle academic work, e.g.,high school grades showing improvement, acceptable achievement at some point, or promising standardized test scores;

- willingness to accept some measure of personal responsibility for achievement or failure;
- at least a minimal perception of self-worth;
- emotional toughness evidenced in perseverance in the face of frustrating circumstances;
- intense motivation to improve the circumstances of one's life;
- some indication of potential leadership;
- the capacity to think and plan creatively;
- the ability to distinguish realistically between what is desired and what is possible;
- a special talent--facility in music, art, athletics;
- success in an activity that has required sustained effort.

The one selection criterion which Williams found mentioned by virtually all schools was achievement motivation, but not necessarily motivation directed toward the attainment of educational goals (p. 4). Other writers regarded this selection process as nothing less than the selection of winners.

Williams found that most programs had some form of financial aid as a component and that their primary academic focus was the development of communication skills--writing, reading, speaking, and listening (p. 5). Other components he identified were individualized instruction; extensive individualized tutoring done by teachers, graduate students, regular undergraduate students, and more advanced disadvantaged students; programmed instruction; very liberal probationary policies, and instruction in the basic study skills. In the main, Williams found that universities had given as much attention through regular personal counseling to the affective dimensions of the disadvantaged as to the purely academic.

How successful were these programs? Using a persistence criterion, Williams found that the mortality rate for disadvantaged students had been no higher than for regular students (p. 9), but he raised an important question: can we assume that this low mortality rate is a function of the special program? In evaluating programs for the disadvantaged, Williams stated, "It is extremely difficult to determine specifically what factors are responsible for the success or failure of these students. Financial aid, special housing, intensive orientation to university life, special courses, small group instruction, programmed instruction, a personalized teaching relationship, tutorial assistance, personal counseling, compensatory study in language arts, reduced work load, and an extended time period to obtain a degree, constitute the major features of programs for the disadvantaged" (p. 10). In Williams' opinion, most programs were not experimentally designed to permit empirical assessment of the effects of specific independent variables. Use of retention as an overall measure of effectiveness of a program was not promising. A request for data on retention from 105 universities in thirty-four states showed that only forty-eight institutions had retention data and the remainder either had no data or their programs were too recent to have such data. The Williams' study is classified as exploratory, limning the situation of compensatory programs in 1968 in broad strokes.

Higher Education and the Disadvantaged Student by Helen Astin, Alexander Astin, Ann Bisconti, and Hyman Frankel, 1972

In 1972, Helen Astin et al. published a study funded by the Office of Economic Opportunity. The major question which the authors sought to answer was: Do compensatory programs help the under-prepared, specially admitted students to make the educational and social adjustments necessary to complete a college education? More specifically they sought to answer:

- To what extent do higher educational programs for the disadvantaged serve their clients?
- What types of program components show the greatest promise?
- Which of the various college environments and experiences facilitate the educational and personal growth of disadvantaged students?

The authors were interested in the overall success or failure of disadvantaged students: their personal characteristics and social background as associated with success and the extent of their educational needs, as distinct from advantaged students.

The authors used two distinct research approaches: a longitudinal approach and a case study approach. They utilized case study data from nineteen selected institutions which were gathered by the University Research Corporation (URC). The longitudinal student data was obtained from the American Council on Education's (ACE) extensive institutional data.

The study of these nineteen institutions did not add much to the literature which was not already known in 1972. Furthermore, the sample was biased limiting generalization. The nineteen institutions were among the elite schools in the nation (p. 46).

The authors did not evaluate the institutional compensatory programs for their effectiveness, efficiency, and equity. Their task was merely to describe the situation and some salient findings deserving of attention:

- In the early stages of most of the programs, it was quickly apparent that goals and organizations were ill-defined and overly loose, so the move has been toward more structure; better definition of program goals; more specific services; and new program components have evolved. More widespread and organized recruitment operations and some new programs grew from the evident need to offer support to enrollees from summer or transitional programs (pp. 112-113).

- Students and staff both within and outside the programs viewed the primary objectives as being to provide an equal opportunity to the poor and to give minority-group students a chance for a college education. Others mentioned building skills,assisting the student to adjust and changing attitudes within the community (p. 113).

- A few programs had a built-in evaluation component to assess old and new procedures. This evaluation whether conducted by researchers or by program participants helped staff members to be more effective in providing services. Some programs limited evaluation to comparing special students' grade point averages with those of the general student body. Others had no evaluation procedures at all (p. 114).

- Most respondents reported that the programs had had very little impact on the academic community as a whole, although some changes--such as better understanding, increased enrollment size, and changes in the composition of the student body--were noted. (p. 116).

Among the many implications drawn from the findings, one related directly to policy and evaluative research: "A chief obstacle to the success of the special programs described here has been their lack of a definite structure and of clearly defined goals. One of the first considerations, therefore, should be better planning and more extensive evaluation procedures. In addition, students both within and outside the program must be better educated to its purpose" (p. 117).

In 1965, the ACE initiated its Cooperative Institutional Research Program (CIRP)--a continuing project in which a representative sample of over three hundred colleges and universities were involved. The overall purpose of the project was to assess the impact of different college environments on the development of students. Thus the ACE had developed a comprehensive data bank on both students and institutions.

In December 1969, in cooperation with the Carnegie Commission on Higher Education, the American Council on Education conducted a follow-up study of 200,000 former entering freshmen. These 200,000 freshmen were taken from each of the four entering classes, 1966, 1967, 1968, and 1969. About 50,000 students came from each of these classes. Questionnaires were mailed to eight hundred students from each institution. The nineteen case-study institutions included in the Astin, et al. study were included in the follow-up study. Fifteen of the nineteen institutions surveyed enrolled 3,200 students who had participated in special programs for disadvantaged students (p. 7). From the 3,200 disadvantaged students enrolled, 3,165 were included in the survey. Only twenty-seven percent returns from the ACE mailed questionnaire were usable, that is, 770 disadvantaged students out of a 3,165 sample returned usable questionnaires. This serious mortality problem jeopardized generalizations.

The Research Design

The research design called for a comparison of the reduced experimental group of 791 disadvantaged students with a control group of 3,650 regular students from the same institution. The authors realized that results from this study had to be viewed with caution and that their findings represented tendencies, rather than definitive and generalizable facts. They felt, nevertheless, that comparison could be made between the control and experimental groups because the errors connected with non-response were similar for both groups (p. 124).

Recommendations and Findings

Because our main interest lies with evaluation of programs designed to counteract the disadvantaged students' basic deficiencies, it is not necessary for the purpose of this section of our report to catalogue student and institutional characteristics. The Astin et al study, however, made recommendations dealing with planning and evaluation worthy of note. Moreover, their recommendations were consistent with other studies in this area.

A problem that should concern educational planners and policy makers, the authors observed, was the general lack of systematic research and evaluation. They remarked that it was unrealistic in view of the limitations of time and resources, to expect the directors of special programs to assume complete responsibility for evaluative functions. Moreover, they found that program directors already bore the weight of directing programs which were peripheral to regular academic institutional programs and indeed had to struggle for survival. Consequently, the authors believed that adequate research and evaluation can be carried out only if supported by state, federal, and private sources (p. 229).

The authors provided still other reasons for recommending support of evaluative efforts by state or national, rather than institutional sources:

- Studies of a single institution are rarely adequate;
- Multi-institutional studies, in which comparative longitudinal data are collected from students as they progress through different colleges, provide a context in which single programs can be evaluated are preferred because multi-institutional studies offer a means for comparing various approaches to education of the disadvantaged student (p. 229).

For the purpose of ongoing programmatic direction and adjustment, an information system capable of gathering viable data is mandatory, and we agree with the authors that it may be unrealistic to expect the directors of special programs to assume complete responsibility for these functions. Federal, state, or private sources which fund projects or programs and demand evaluation to be part of the conditions for funding should, likewise, ensure that evaluation personnel either be on the special programs' staff or serve as consultants on a regular basis. The skills necessary to organize and operate an information system are distinct from the skills necessary to direct efficiently, effectively and equitably special programs for disadvantaged populations. Whatever the difficulty, valid and reliable project reports, including information on the effectiveness, efficiency, and equity of special programs, are necessary if policymakers are to have reliable evaluative data for decision making.

The Admission of Minority Students in Midwestern Colleges

by The College Entrance Examination Board (1970)

The College Entrance Examination Board set out to provide up-to-date descriptive information for college administrators regarding admission policies and practices for the minority students coming on campus. The Midwestern Committee, established for this purpose, believed there was a need for empirical data because relevant research literature prior to the 1960's was sparse and the literature produced since then was often "exhortative, polemical, or heavy with political rhetoric " (p.1)

Sample

In order to facilitate a response from policy-makers, the questionnaire was limited to one page and most questions were quantifiable. Attention was given to making the sample respresentative by stratifying for type, degree of selectivity, size, and control. The sampling according to intake of freshmen was disproportionate with a sample ratio of .67 public colleges to .25 private colleges. This sampling fraction was based on the distribution of minorities who attended public colleges.

Findings

The study reported that the percentage of minority enrollment had increased from 3.7 percent of all entering freshmen in 1968 to 4.5 percent in 1969 with a projected 5.6 for 1970. There was a 25 percent overall increase in enrollment in midwestern colleges from 1968 to 1969 with a 30 percent increase projected for 1970. Examining methods of recruitment showed that three elements were most often involved: minority personnel, direct contact with schools, and special programs designed for minority students (p. 6).

Evaluation

The policy utility of this exploratory study is questionable unless it is followed through year after year. Descriptive information on minority students on campus, such as that given in this report,is not sufficient for policy action or program evaluation.

Higher Education Opportunity Program: Final Report 1972-1973 New York State Commissioner's Report to the Governor

In 1966 a state program was instituted to advance the cause of equality of educational opportunity in the City University of New York (CUNY). This program came to be known as Search for Education, Elevation, and Knowledge (SEEK). A similar program was extended later to some units of the State University of New York (SUNY). Likewise, in 1970, a similar program encompassed both private colleges and universities under the Higher Education Opportunities Program (HEOP).

Higher Education Opportunities Program (HEOP)

HEOP was established in 1969 to coordinate statewide opportunity programs at CUNY, SUNY, and the private colleges and universities under the aegis of the Board of Regents. The state legislature appropriated $5 million for implementing its provisions. Appropriations had grown over the years and for 1972-1973 totaled over $32 million. Table 30 illustrates the increase in appropriations and enrollment.

TABLE 30. ENROLLMENT AND COST OF HEOP SINCE 1969

Year	Appropriations	Cost per Student	Enrollment (1)	Enrollment Goals(2)
1969-70	$ 963,274	$ 510	$ 1,887	
1970-71	3,999,390	1,136	3,520	
1971-72	6,250,000	1,280	4,883	
1972-73	6,850,000	1,312	5,220	5,300
1973-74	7,410,000	1,398	5,300(3)	6,200
1974-75	9,690,000	1,700	5,700(4)	7,300

(1) Two-Term Mean

(2) From Regents 1972 Statewide Plan

(3) Anticipated

(4) Projected

Source: Higher Education Opportunity Program: Final Report 1972-1973, p. 2.

Criteria for Identification and Admission of Educationally Disadvantaged Students

In 1972-73 private colleges and universities of New York continued their HEOP programs and in a few cases expanded their efforts. In all, sixty-two programs were funded serving more than six thousand students. Three criteria were established for admission: students must have potential to complete successfully a college education, must be educationally disadvantaged, and must be economically disadvantaged. The basis for measuring economic disadvantage was family income periodically adjusted, however, to meet inflation. Based on this standard, HEOP had the following profile:

- Fifty-four percent of all HEOP students were from families with incomes less than $4,000;
- Seventy-seven percent were from families with incomes under $6,000;
- Ninety percent came from families earning less than $8,000 in 1972-73;
- Less than two percent were from families with incomes over $10,000.

The criteria for identifying the educationally disadvantaged changed several times from the initiation of the program. A basic measure had always been the target student who would be excluded from admission because of poor high school performance and test achievement. HEOP used both actual quantifiable test and record scores, and measures of deviation from the norm for predicting success at individual institutions to define the academically disadvanteaged. In 1972-73, however, some changes occurred in response to institutional requests HEOP modified its guidelines for academic eligibility. The academically disadvantaged student was defined by the Regents as one "who is non-admissable, by normally applied admission standards, to any regular academic programs at the institution" (p. 8). Most colleges had a cut off point of eighty on the SAT scores; however, most HEOP students fell in the sixty-nine to seventy-eight range.

Measures of Achievement

The report took as its criteria of effectiveness: achievement and persistence. Achievement was measured by the number of accumulated credit hours and the grade point average earned. Persistence was measured by the number of semesters in the program. The typical HEOP program aimed at acquiring 120 hours and a bachelor's degree within a four or five year period. The normal course load of fifteen hours per semester was lessened during the first two semesters for the average HEOP student. During this time the HEOP student concentrated on the improvement of his reading, mathematics, writing, and study skills--in courses which did not carry credit for graduation. The report indicated that by the middle of the sophomore year seventy-seven percent of the HEOP students had completed thirty credit hours; by junior year (sixth semester), eighty percent had completed sixty credit hours; and that more than two-thirds of all students had gained parity with the norm by achieving 105-120 or more hours in eight semesters (p. 24).

The grade achievement records of HEOP students measured in terms of cumulative grade point average indicated the same general trend of success. Although thirty-six percent first-semester HEOP freshmen fell in the lowest two grade quintiles (0-.8 and 0.9-1.6), a steady rise was observed thereafter (p. 26). The percentage rate of course completion showed that after a relatively poor completion rate for the first semester, students tended to complete courses at a rate of four courses or more, out of five. However, course completion was a poor indicator insofar as some campuses encouraged students to enroll for more courses than they intended to complete because there was no penalty for withdrawal.

An analysis of approximately 1,100 students leaving the program in 1972-73 showed that only twenty percent were dismissed for academic reasons and fourteen percent voluntarily withdrew for academic reasons (for a total of thirty-four percent). It was noteworthy that twenty-four percent of those dismissed for academic reasons were male and only fifteen percent female. The most frequently cited reason for withdrawal was "personal" which was interpreted as financial or family emergencies; of these withdrawals, twenty-eight percent were female and only twenty-two percent male.

Disadvantaged students showed a tendency to avoid courses that required a strong math base. Approximately twenty-five percent of upper division HEOP students had a social science major; twenty percent were in education; twenty-five percent were distributed between business administration, fine arts and applied arts, and biological sciences. Women students tended to elect psychology and fine arts, while men enrolled in business management.

The number of HEOP students who completed two and four-year degrees tended to rise sharply from 1970 to 1973. It was projected that an output rate of approximately ten percent of students enrolled in a given year would graduate. Moreover, it was also noteworthy that 26.5 percent of the HEOP graduates went on for graduate education (p. 32).

Evaluation of HEOP Report

A final method of evaluation of the effectiveness of the program used in the HEOP Report was the inclusion of some case histories. Case histories of this type were effective in giving a certain personal dimension to the statistical picture and indeed may have had more impact on policy makers than "cold facts"--especially when they were used in combination, as in this HEOP Report.

However, their persuasive power must not lead one to regard them as scientific indicators of program effectiveness. A report of this nature poses an interesting problem for evaluative research.

Programs should not be merely indirectly evaluated by goals outside the direct operation of the program. The effectiveness of a remedial program, for example, cannot be measured directly by the retention rate of grade average in other courses, apart from the immediate remedial program. The role of intelligence may well compound the results. Legislators and policy makers, however, are often more politically interested in tangible numbers and in the racial and ethnic make-up of students than in the degree of improvement of the students' basic academic deficiencies. The indirect criteria of persistence and graduation, as overall measures of program success, may be more persuasive to a policy maker for continued funding. By these measures, HEOP, appeared to have been a successful program worthy of continued funding. It is evaluation of outcomes by scientific methodology, however, that provides more reliable data for decision makers.

Many assumptions in the report on HEOP were debatable especially those assumptions relative to the personality of the disadvantaged student. "While the

HEOP student may be 'academically disadvantaged' he often brings to college a positive, healthy orientation. The HEOP student has a frank, blunt, candid approach that is not present in the typical non-HEOP student, and usually possesses a 'street' sophistication, not found in most white, middle class students" (p. 36).

In addition to teacher empathy, teaching methods, too, must be adapted to the characteristics and learning patterns of the disadvantaged students. The HEOP report listed teaching approaches which institutions experiencing success in educating the opportunity student had utilized. Below is a summary of these major approaches:

- The inclusion within the curriculum of all disciplines the contribution of all national and transnational groups to the development of contemporary society.
- Classroom discussion and seminar type approaches rather than straight lecture presentation.
- Individual or group projects, written or oral.
- Field research or involvement outside the institution within the particular disciplines.
- Self-instructional and programmed materials.
- Computer and gaming simulations.
- Communications:
  a. Telephone lectures and link-ups

- b. Television
  - 1) Open and closed circuit
  - 2) Video-taping
- c. Films, cassettes, other audio-visual devices.

- Student designed courses, programs, learning experiences.
- Independent Study.
- Study abroad.
- Inter-, multi-, and trans-disciplinary studies. (p. 37)

The report indicates that various strategies were used in implementing these approaches among which were: institutional grants for experimentation, in-service faculty training, and the use of institutional community HEOP advisory committees to introduce and "sell" successful instructional techniques and methodologies. There is no indication in the report of the effectiveness of these practices, techniques, or approaches. Nor is there any mention of how efficient they were.

Lack of Trained Personnel

The services of HEOP programs are varied in nature and are based almost entirely on the needs of their diversified student populations. The need for coordinated compensatory services and practices is well documented. The authors indeed emphasised: "programs that provide these needed services find themselves faced with the continuing problem of finding adequately trained personnel to deliver vital services" (p. 44). The areas for which trained personnel were most needed were: language arts, study skills, reading, developmental and remedial English, math, and science.

Staff persons must also be sensitized to the HEOP population and dedicated to the goals of non-traditional education according to the report. However, the assumed role of staff sensitization, a vague and ill-defined concept, was not clarified or empirically verified as truly essential in dealing with students with academic deficiencies. Another recommendation was made relative to training new personnel: the training ought to be immensely different from the training of a traditional English, reading, math, or science teacher (p. 44).

The report states that a number of colleges and universities had begun to provide graduate training aimed at the needs of these new professionals. The following graduate programs were being developed:

- Programs in counseling the disadvantaged student;
- English as a second language;
- Student Personnel Services;

- Individual and group counseling techniques;
- Resources for training the disadvantaged;
- Career development concepts;
- Education of the slow learner;
- Self in society;
- Role-playing, video-taping, micro-teaching techniques.

Although such programs flourished, particularly at SUNY at Brock, SUNY at Albany, and New York University, the report emphasized how limited these programs were in the face of the actual demands and concluded: "Still, little structured graduate training has been developed in the crucial developmental skills area" (p. 45).

The report notes that in 1972-73, program directors were, for the first time, requested to submit self-evaluations as part of their institutional reports. Of the sixty programs funded during that year, thirty-four responded, of which twenty-four were merely brief statements. Only seven submitted reports of any significance and three indicated that major evaluation efforts were underway (p. 48).

Based on these limited returns the report drew certain tentative conclusions regarding program components:

> Tutoring: Although students indicated that tutoring was "quite effective and helpful, it remains

> questionable whether tutoring should be mandatory, or should be provided on a volunteer basis."
>
> Counseling: Students indicated general pleasure with the quality of personal and academic counseling. Although in the area of termination counseling, little has been done by most educational institutions.
>
> Development Courses: Development courses have been found valuable to the student in the following areas: English, reading, mathematics, language arts and communication, and study skills. There appears to be a correlation between low grade point averages and high rates of incomplete courses; incompleteness and withdrawals, at some institutions, have been fairly easy for students to arrange, and may have had a significant effect on their overall academic performance.

The Report cautioned that the following evaluations may not be indicative of the entire state.

> Recruitment: The main thrust of the recruitment effort seems to have been provided by the Project Director and/or his staff.
>
> Summer Programs: The majority of responses indicate overwhelming affirmation of these efforts based on impact on student progress.
>
> Admissions: No good correlation has been established showing a predictive value for most standard tests of cognition, e.g., the SAT. Personality Inventory instruments appear promising, however, as a future direction to explore. The best results still come from personal interviews conducted by certain experienced interviewers. The variables contributing to these individuals' success rates have not yet been isolated.
>
> Orientation: Student reaction to orientation sessions has been mixed, according to summaries of replies to student questionnaires. One problem identified concerns the student commuter and his feeling of non-involvement in the academic and social affairs of the institution. Many students

> point to the lack of socially relevant activities on the individual campuses. Most orientation sessions have not adequately addressed themselves to this significant aspect of student life.
>
> Director of the Program: Most students view the director as a trouble shooter whose primary involvement with the students is in the academic area; second, in clearing institutional administrative and staff problems; and third, in dealing with student financial concerns.
>
> Future: HEOP Central has reorganized to increase its research and evaluation capabilities. Future reports will reflect more sophisticated data collection techniques, resulting in the publishing of information of a more generalizable nature (pp. 49-51).

This HEOP report manifests the urgent need for proper program evaluation where millions of dollars are involved. The appropriations for the HEOP program 1974-75 were close to $10 million. As the writers of the report were well aware, there is a need for objective data--as distinct from the subjective data based on intuition and rosy evaluations by directors looking for continued funding and justification of their existence.

The report conveys the idea that much is being done in the state of New York--and successfully--even though adequate evaluation is missing. However, an intimation of impending financial risk a student must take because no financial assistance meets his full college costs is recognized as a drawback.

> It was found that the HEOP student has a "gap of $950 which he himself must provide (after loans, work, and financial aid have been accounted for)" (p. 65).

The Report estimated that this is equivalent to a yearly obligation (including loans) of approximately $1,350 for each student. The Carnegie Commission reports and other literature on financial assistance frequently stressed that lower-division financially poor students, especially at relatively open access institutions, such as community colleges, were often uncertain about their prospects for academic achievement in college, and thus may be especially reluctant to finance their education through borrowing.

The author of HEOP suggested that the majority of students leaving college do so for financial considerations rather than as a result of academic dismissal (p. 65). He indicated that because the level of state funding made available to cooperating institutions has reached a plateau, students from disadvantaged economic backgrounds will be "increasingly denied freedom of choice--their opportunity may narrow to the point that the public sector will be the only available port of entry" (p. 66). Private sectors have also reached their "saturation point with respect to the allocation of their own resources to opportunity programs" (p. 67).

The diversity of educational opportunity, the author suggested, will consequently be materially affected unless present funding is renewed and intensified. Based on these observations the author made the following final recommendations:

> If it may be assumed that these programs are educationally sound and societally beneficial--then a renewed, intensified, and massive commitment of resources would appear to be the order of the day. To do less is to embark on the dismantling of one of the most encouraging and effective enterprises in behalf of economically and educationally by-passed people ever developed (p. 68).

Such advocacy is indeed an essential part of policy research. Nevertheless, objective judgment regarding the effectiveness, efficiency, and equity of programs must be based on the demands of evaluative research. The efforts of New York state, through HEOP programs, demonstrated the need of more thorough evaluative research. Although the findings and suggestions made were admirable with a certain face validity, it would have been preferable to see them substantiated by a more scientific evaluative methodology.

Summary of Implications for Programmatic Studies

Many implications both for program improvement and policy research have emerged from the evaluation of programmatic studies--federal programs, such as Upward Bound and the Economic Opportunity Grants (EOG); state programs, such as the New York Higher Education Opportunity Program (HEOP); and institutional programs at two-year and four-year colleges and universities. Implications for the improvement of evaluation procedures deal with the specification of immediate objectives, and the establishment of measures for inputs and outcomes. This double improvement will greatly facilitate better evaluation of the effectiveness, efficiency and equity of programs. The major implications for program improvement involve adoption of a comprehensive approach to developmental programs on all levels--primary, secondary and postsecondary; the incorporation of feedback components; and the training of professionals in developmental skills.

Evaluation Improvement: Immediate Objectives

While overall goals and objectives should be clearly specified, these goals may be regarded as the general or ultimate purposes of a program, and they are often not quantifiable. Such goals constitute a condition which is desirable in itself, according to the value system of those responsible for setting up the program. But the statement of that particular situation or condition which is intended to result from present program efforts are those immediate objectives or specific objectives of a program and these must be spelled out in measurable terms for they directly measure the effectiveness, efficiency, and equity of the specific program.

In evaluative research the distinction between ultimate and immediate objectives is essential. The immediate end of a program or activity must be clearly identified for the purposes of attainment as well as evaluation. It is critical that the ends be measurable and that targets be set for accomplishing various stages of program objectives. Too often in the literature it was apparent that the effectiveness of remedial programs had been judged by ultimate objectives, such as grade point average or retention in a postsecondary institution, rather than by the immediate objectives of the remedial program aimed at specific skill improvement. If the aim was to write a grammatically correct essay, then it would be logical to evaluate a student or a class on this objective and not on grade point average, graduation, or retention in college.

Likewise, objectives must also be specified by duration: long-, medium-, or short-range goals. Remedial programs generally have short-range objectives of one- or two-semesters: a remedial writing course, for instance, might aim at having the class write a grammatically acceptable essay at the end of one academic year or write a grammatically correct paragraph at the end of one semester, or attain specific vocabulary increment per week. The specification of quantified objectives in relation to specific time spans is critical to evaluative research.

Finally, many factors contribute to a student's success or failure; the failure, therefore, of one component does not warrant the total program be judged a failure. In sum, we have questioned the validity of any evaluation where the success of a program designed for equalizing educational opportunities was judged by ultimate objectives alone.

Measurement of Inputs and Outcomes

A major implication of our study is that evaluative research must attend more intensely to the establishment of scales to measure outcomes. The central challenge lies in establishing a basic unit of measurement.

Program evaluation should specify precisely the imputs of a program in terms of time, money, manpower, and resources. These inputs should be measured in terms of specific units. Ratio scales do exist for most of these inputs: time, for example, is measured in terms of seconds, minutes, hours, weeks, months, and years; monetary units are cents, dollars, and so forth; manpower units are generally noted in terms of numbers of persons, sex, ethnic or racial background, etc. It is necessary also to identify hidden units such as indirect costs. The existence of ratio scales for most inputs may in part explain why evaluative research first concentrated on measurement of inputs.

Because evaluative research is in its infancy, precise units of outcomes are still lacking. How should motivation be measured? or basic skills? or personal development? In the past, certain ordinal scales have been attempted, for example:

> Reading skills have generally been measured in terms of grade-level achievement. In the absence of a more acceptable unit, this ordinal scale is widely utilized and tolerated.
>
> Math skills have also been measured by grade-level achievement and achievement tested by means of standardized tests. This too is an ordinal scale, not an interval scale.
>
> Motivation is extremely difficult to measure; in fact, whether motivation can be measured on an

> interval scale is a moot question. Nevertheless, if motivation is a factor in program outcome, attempts might well be made to develop a precise unit of measurement. Ordinal scales are probably all that can be achieved at present. An interval scale, though more desirable and undoubtedly more fruitful for scientific purposes, may not be feasible at present. We feel, however, it should be sought after, although many scholars feel such a scale is logically impossible to attain for equivalent units cannot be determined.

Evaluative research, therefore, is still in dire need of scales to measure outcomes.

Outcomes are either manifest or latent. We accept the position that manifest positive outcomes of a program should be primarily considered in evaluation and indeed such was the case in the literature. Negative manifest outcomes must also be given attention. Positive outcomes may have negative and unacceptable consequences or limitations and these cannot be ignored by the practitioner or evaluator. Moreover, latent or unintended consequences, both positive and negative, ought to be given consideration. Rarely did the literature consider the latent consequences of a proposal. An attempt to foresee and measure these, however, is advisable especially when they impinge on other important and valued goals or purposes. We do not see any easy way to eliminate all threatening aspects of evaluating program effectiveness by examining negative outcomes, but we do believe that the threat can be overcome if the benefits of the negative feedback can be perceived as outweighing the costs of failing to pay attention to negative consequences. Such negative feedback can lead to improved program effectiveness.

Few program evaluations deemed the latent effects important and we are not suggesting that studies measure all negative or latent consequences, but only that evaluation take cognizance of these consequences. Negative consequences must be foreseen or, at the least, identified through feedback.

Measurement of Effectiveness, Efficiency, and Equity

It is important to find a measurable unit for each distinct outcome of a program because the effectiveness and efficiency of a program can only be fully measured when this task is accomplished. Further, the comparative judgments of effectiveness and efficiency, dependent on the establishment of accepted units of inputs and outcomes, demand the standardization of these units.

We have based our evaluation of evaluative research on the assumption that the effectiveness of a project or program be judged by the degree to which it reaches its immediate objectives. The measurement, then, of program effectiveness must include measurement of the conditions specified in detail in the immediate program objectives. Because many programs lack just such specification of immediate objectives, evaluators asked to measure the effectiveness of programs were often stymied by the fact that general and ultimate objectives were clear, but immediate objectives were vague and often confused.

Efficiency can be judged by the ratio of the units of outcome to units of inputs, and permits a comparative index of the cost of outcome units in terms of time, money, manpower, and resources. Equity is sometimes interpreted to mean "equality" in sharing in the benefits of society. We fail to agree with this definition. In the area of equalizing educational opportunities, "equality," or equal sharing, is often inequality. Equity may not be measured by the norms of commutative justice but rather by distributive justice, which is a proportional measure. All quota systems have only the appearance of proportional measure and consequently often are inequitable. As with Affirmative Action programs, equity is not the immediate goal of such programs.

While equity may be described in the laws of the nation which call for the equalizing of educational opportunities as in the EOG program specifying that funds should go to those of "exceptional need," equity may well not be the case in practice. The 1970 study of EOG by Nathalie Friedman showed that the most needy do not necessarily benefit from these funds. Her evaluation of EOG found that the implementation of these "equitable laws" in fact discriminated against the most disadvantaged. Additionally, students had to be admitted to a postsecondary institution before being awarded EOG monies. Institutions had their own value system and were established for specific educational goals. Is the policy of an institution inequitable towards the target population of the disadvantaged when it fails to allow for the admission of all needy and high risk students? We believe that there are serious implications from our study that equity will not be fully realized until all disadvantaged students are guaranteed individual access without dependence on the election of institutions. However, we believe institutions are equitable when they make their proportional contribution to the national goal. Providing for equity of educational opportunity is a national goal and a national objective-- not necessarily that of individual institutions.

Systems Approach

Some of the literature evaluated called for a comprehensive model in order to help the disadvantaged student satisfy his special social, cultural, biological, and personality needs. The systems model has been proposed as an effective approach by some authors (Dror, 1971; Gunselman, 1971; Etzioni, 1970), but no one has fully demonstrated its potential for program development and improvement. Consequently, there is a definite need for building and experimenting with a comprehensive systems model. The use of a systems model raises a number of unanswered questions: the first dealing with the authority structure of compensatory educational programs and the second with the integration of such systems within post-secondary institutions. The proposed systems model, following general systems theory, should be patterned after certain elements of the larger institutional system in such a way that the director of the compensatory program would have responsibilities and authority commensurate with those of a department chairperson; the staff would have institutional responsibilities and rights of tenure, promotion, etc., as regular academic staff. Other unanswered questions which arise suggest further study: Should the English remedial teacher be a member of the English Department or the Developmental Programs staff? Should the director be attached to the office of admissions, or academic counseling, or the academic dean? Should federal monies be chanelled directly through institutions or through students or both? Should students be given credit for remedial courses? Should compensatory education be an integral part rather than an adjunct of postsecondary education? Should compensatory efforts be part of total educational effort on all levels? Should specific components be aligned with particular characteristics?

Only full experimentation and evaluation can provide plausible answers. Such evaluation is lacking. The very assumption that postsecondary education be involved in remediation and attempt within a short period of time to compensate for twelve years of neglect may also be challenged.

The Feedback Component

Feedback is the regular system of gathering, analyzing, and reporting specific data. Feedback data constitute an information input which influences the ongoing decision-making process on all levels. One of the major policy implications of this study is the absence of programmatic hard data. Feedback information directly related to decision making has been systematically missing in most practices and comprehensive programs for the disadvantaged. Judging from the literature, when the semblance of a feedback component did exist, it was poorly designed and implemented. Today most systems analysts would agree that the modern cybernetic feedback system should be an integral part of any ongoing social system. This deficiency in the programs evaluated, we believe, is a chief reason for the poor quality of existing literature.

An effective feedback system would provide the type of information required at each level and stage of development both for the adaptation and improvement of the operation. For each level of organization, distinctive informational needs should be defined and then a distinctive feedback system should be established to meet these needs. The Federal Government and sponsoring agencies ought to specify for their programs what feedback they need in order to monitor the project or evaluate its effectiveness, efficiency, and equity; who is responsible for transmitting both positive and negative feedback; and how and when the information is to be collected. On the implementation level, the program director must have a similar system. Consequently, feedback information gathered systematically on all levels can be more fruitful and provide a more viable basis for decision making. When uniformity in information gathering exists on all levels, comparative studies, longitudinal studies, and replication studies will be more easily performed.

The designing of cybernetic feedback systems suitable for policy making and program development is indeed a task for modern social scientists. In a complex society, according to general systems theory, an organization cannot maintain a steady state in relation to its rapidly changing environment without a viable feedback system. Successful feedback systems demand that negative as well as positive feedback be rewarded and immediately acted upon; in social programs it has been penalized, avoided, ignored, or hidden. Feedback perceived as a threat has been resisted internally through patterns of explusion, confinement, or conversion. Externally produced negative feedback is resisted by patterns of withdrawal, a tightening or closing of the entrance of information perceived as threatening or critical. The consequence is that normally large systems make major changes of policy only under the force of massive external impact.

The feedback system we propose would interlock internally all components of the program through information links between remedial courses, counseling, recruiting, and administrative units on a daily on-going basis. Feedback, intrinsic to the total system, would bear on every decision. When systematically gathered, analyzed, interpreted, and utilized feedback enables major shifts to originate from within the system with minimum conflict.

A National Integrated Approach

The systems approach examines the total educational institution and assumes that the primary, secondary, and postsecondary levels of schooling are in fact interdependent although semi-autonomous. The output of the lower subsystem constitutes the input to the next higher system. The developmental tasks essential at one level are presumed to have been acquired at their proper stage. Consequently, developmental tasks not accomplished at a lower stage, make achievement of the higher developmental tasks more difficult. The acquisition of requisite standards of competencies and skills at each step of the educational ladder is critical. If requisite standards appropriate for each level are not met, the deficiency is transferred and compounded. Besides imparting the basic skills and competencies proper to each level, the instruments measuring the acquisition of these skills are urgently required. This calls for a nationally integrated plan for all levels of the educational ladder rather than the present piecemeal approach by the governmental and educational institutions. An integrated plan from grade one through grade twelve entails personnel trained and specialized in developmental skills teaching for all levels of schooling.

Need for Skilled Personnel

The literature clearly established that developmental or remedial teachers, counselors, tutors, and administrators of such programs need highly developed skills to work effectively with educationally deficient students. The assumption that cultural empathy and ethnic identification of developmental personnel alone are sufficient to remedy the deficiencies in basic cognitive and affective skills is open to doubt. The literature shows that across the country skilled personnel are not being prepared to meet the needs of disadvantaged populations. Although high risk students were the designated target population of a number of federally funded programs, the high risk student who, by definition, lacks basic academic deficiencies still has the least opportunity for access, persistence and graduation from a postsecondary institution. Because of poor evaluative designs, the success of the small percentage who graduate with competencies congruent with their postsecondary certification cannot validly be directly attributed to compensatory programs or to the financial aid the student received.

A Final Word

While the theory of evaluative research has made considerable strides in the past ten years through the efforts of such theorists as Suchman, Coleman, Sewell, Etzioni, Williams, Rossi, Evans, McDill, Dror and others, the actual application of evaluative research principles to compensatory programs for the disadvantaged populations has made little progress.

We believe that the advance of practical evaluative research has been delayed by two technical problems. The first difficulty pertains to the measurement of outcomes and the second relates to the feedback system. The measurement of inputs of time, money, manpower and resources by sophisticated ratio scales overshadows the weak ordinal scales used to measure the outcomes, effectiveness, and efficiency of programs. The improvement of measurement, however, will not advance the cause of practical evaluation without the addition of a feedback system to program operation as a normal everyday component. The feedback component is seen not only as a tool of research but as a necessary element for program improvement and development.

Finally, we are convinced that the major barrier to equalizing educational opportunity today has shifted from the lack of financial assistance to the lack of basic academic skills. The 'high risk' student has the least opportunity of access, achievement and persistence despite the availability of financial aid. This nationwide problem compels a national response. It cannot be met with piecemeal attempts at certain points of the educational ladder. A comprehensive developmental skills program integrated into the very fiber of the educational system on all levels--elementary, secondary, and postsecondary--requires a top policy decision on the federal level. Past legislative policy decisions and national efforts to help the disadvantaged populations offer encouragement and proof of goodwill. These disparate efforts must now be unified into one ongoing program not as an adjunct foreign to the educational system but as a respectable and worthy integral component. The matter calls for planning and reorganization rather than sudden massive funding or extensions of present programmatic efforts. In the following chapter we offer some recommendations which we feel are basic to any planning and reorganization.

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CHAPTER V

RECOMMENDATIONS

Many responses have been put forward to meet the enduring problem of the disadvantaged student. From our evaluation of the basic and evaluation research on the subject and our evaluation of the limited and piecemeal programmatic responses developed during the past ten years, the need for a national integrated and comprehensive program has clearly emerged. Although financial assistance is essential in order to provide the disadvantaged with equal access to postsecondary institutions, the literature reviewed and the reports evaluated in our earlier chapters indicate that the greatest barrier to universal postsecondary education is still a lack of academic competencies. Postsecondary institutions have been willing to alter admissions criteria and open their doors to students whom in the past they would not have admitted. They are still slow, however, to recruit and admit academic high risk students. Today, "equal access" also implies an equal opportunity for success--ordinarily recognized as the attainment of a two- or four-year degree.

The greatest barrier in the nineteen seventies to universal access is lack of academic competencies. Postsecondary institutions do not have the resources or personnel trained to deal with large numbers of academic high risk students; their traditional philosophy of scholarship and excellence, their structure and organization are not responsive to students who lack these very basic skills.

Debates over financial barriers and deprivation by location, ethnic groups, age, sex, and minority status often confuse the basic issue. A student's financial and minority status is not the major barrier particularly since the implementation of the Higher Education Act of 1965 and its subsequent amendments. The lack of academic competencies is. The inadequacy of pre-college education still prevents many Americans from developing their full potential and limits their educational experiences.

With the academic high risk student in mind, we believe several interrelated steps should be taken by federal and state governments and by educational institutions on every level as illustrated in Figure 14.

Recommendation #1. Planning

> That the Office of Education establish a research team 1) to select a random sample of elementary and secondary schools; 2) to develop and establish in these schools competency levels for grades one through twelve for oral and written communication skills and math skills and that this integrated program be labeled the Developmental Skills Program.

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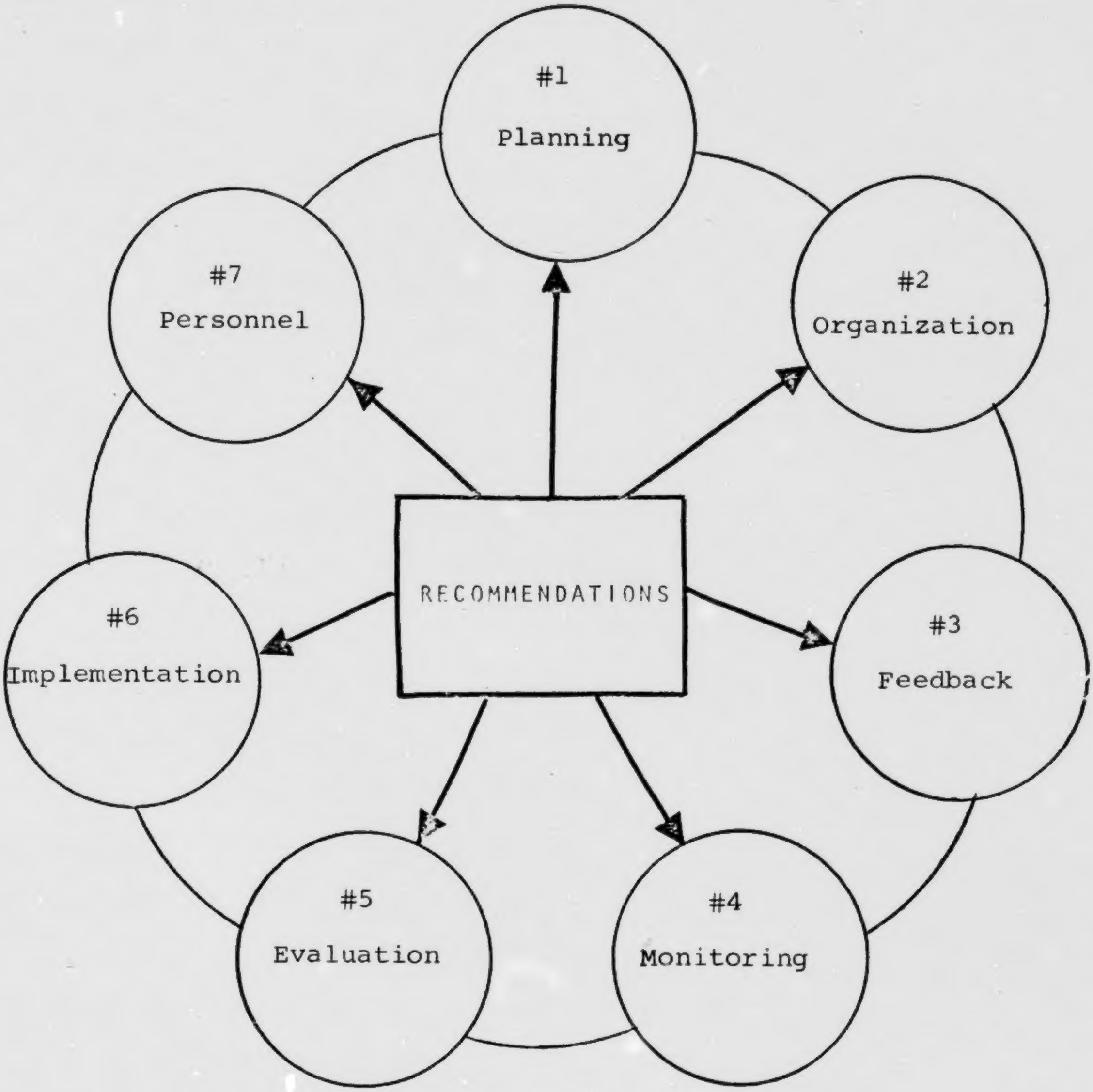
#1
Planning
#2
Organization
#3
Feedback
#4
Monitoring
#5
Evaluation
#6
Implementation
#7
Personnel
RECOMMENDATIONS

Figure 14. POLICY RECOMMENDATIONS
NATIONAL DEVELOPMENTAL SKILLS PROGRAM

Rationale:

The literature indicates that many disadvantaged students from low-income families(along with some students from supposedly advantaged backgrounds) are lacking essential developmental skills in oral and written communication and in math. Unless there is a coordinated effort on the primary and secondary levels, the acquisition of these competencies is left to chance. An integrated program throughout the legally required years of schooling will not only prepare young people for most postsecondary institutions, but also for a more effective and productive life in a democratic society. Possessing a high school diploma without having acquired the skills essential for continued learning is meaningless. Universal access to postsecondary institutions for students lacking basic competencies places unwarranted demands upon these institutions and calls for a tremendous adjustment in their philosophy of scholarship and excellence, as well as in their curriculum, organization, and resources. The student who lacks basic academic skills and is admitted to a postsecondary institution may unfortunately graduate without them.

Logically problems should be met and solved at the level on which they occur. Transferred problems become accumulated and compounded problems. Sponsoring the planning, initiation, and implementation of an adequate national developmental skills program for grades one through twelve, and the training of professional personnel to deal with the problems inherent in responding to the unique needs of various groups in American society is, we believe, an important responsibility of the federal government. The responsibility for solving this national problem falls on the federal government by virtue of its purview which encompasses national educational goals and attainment.

Recommendation #2. Organization

> That the Office of Education establish a research team to assist in the organization of a developmental skills program by 1) developing diagnostic materials for identifying and assessing student's needs in grades one through twelve in the three specific skill areas: oral and written communication and math skills; 2) designing a competency-based curriculum to meet the identified needs; 3)developing specific measurable objectives for acquiring academic skills and study habits, and for increasing motivation for continuing on the educational ladder; 4) developing the instruments for measuring competencies; 5) measuring at set intervals the progress students and institutions make in meeting the competencies set for each grade level.

Rationale:

Comprehensive assessment of student's needs and the measurement of those needs can be performed with a variety of instruments and techniques. These should be performed by developmental skills experts or paraprofessionals under the specialist's guidance. This does not mean that each developmental skills program will be the same. The Spanish-speaking population and the black population, for example, require unique needs-assessment instruments and implementation procedures. However, the expected competencies to be acquired at each grade level should be the same. Likewise, student motivation should be ascertained long before the student's legally required schooling is completed.

Recommendation #3. Feedback System

> That the Office of Education establish a research team to improve and develop the management information and feedback systems for an integrated developmental skills program in order to provide directors with data needed in developing, planning, and evaluating the program. The system should provide program managers with the tools needed to collect the data necessary to:
>
> - assess the specific skills developmental needs of students;
> - identify major problems that must be dealt with, such as, linguistic interference from a foreign language or a dialect;
> - implement an instructional methodology responsive to the student's needs, background, etc.;
> - measure progress made toward meeting stated immediate goals set for each level and stage;
> - assess the effectiveness and efficiency of the developmental skills program.

- implement an effective cybernetic systems model.

Rationale:

A research team can determine the essential information needs for effective management of a developmental skills program at all levels--classroom, institution, state, and national. Once adequate data has been developed, the Office of Education or a federally instituted Committee should implement this recommendation.

The high mobility of Americans requires integrated and specifically defined objectives on a national scale for each academic level.

Recommendation #4. Monitoring

> That the Office of Education strengthen the monitoring program to ensure that all components operate in accordance with ultimate program objectives and in the attainment of immediate objectives standardized for each grade level.

Rationale:

A management-by-objectives system for all developmental skills programs demands an on-going monitoring system. It demands knowledge and analysis of the population served; clearly stated program immediate objectives for all levels and skills; comprehensive student needs assessment; a plan of implementation or activities for each objective, individual class evaluation and program evaluations on the institutional, state, and federal levels; evaluation reports on the effectiveness, efficiency, and equity of programs; in-service and training programs conducted to prove the effectiveness of personnel engaged in the developmental skills program.

All these objectives cannot be assured at the implementation level without an effective feedback system in which there is provided a data basis for regular analysis and adjustment decisions.

Recommendation #5. Evaluation

> That the Office of Education develop a long-range evaluation plan for assessing the effectiveness of the developmental program in meeting both short-range and long-range goals.

Rationale:

Institutions, state offices, and the Office of Education are obliged to ensure that projects meet their objectives in accordance with nationally established guidelines. There is need for precision and uniformity, specifying a range of desired competencies for various levels. Thus short-range and long-range goals must be fixed at the national level.

Performance accountability need not be synonymous with control, nor must accountability presume identical programs. There are many means to achieve the same ends. There must be diversity precisely because individual problems and individual students' needs across the nation are diverse. Local, state, and federal government support should always require maximum accountability for competency achievement, balanced with maximum flexibility in application of means to minimum implementation controls. However, specified competencies at each level must be ensured and accounted for. The Office of Education must, therefore, develop a long-range integrated evaluation plan with capability of measuring the achievement of specified developmental tasks at each specified level.

Recommendation #6. Implementation

> That the Office of Education simultaneously ensure that postsecondary institutions which enroll federally assisted disadvantaged students provide a developmental skills program, and require that such programs be organized and implemented according to levels of competencies as recommended for the elementary and secondary school, but with greater concentration on goal achievement within a shorter time span.

The recommendation includes the establishment of

- competencies for postsecondary level;
- comprehensive assessment of students' academic needs;
- specific measurable objectives for each developmental skill: oral and written communication skills, reading and math skills;
- information management and feedback system which daily monitors the program on various stages;

- comprehensive evaluation plan in accordance with national guidelines.

Rationale:

If postsecondary education is no longer a privilege but a right, those who have not had a postsecondary education should be given the opportunity to pursue their educational goals. If such students need to raise their competency levels, the developmental skills program should assist them. After completing the developmental skills program, the student should be eligible to enter the professional or career program of his choice and commensurate with his ability.

To the extent that postsecondary education represents a public benefit, societal advantages accrue not only from attendance, but also from having gained certain levels of competency and effectiveness. State and federal governments and postsecondary institutions should assume greater responsibility for the ill effects of socioeconomic status, lack of parental encouragement, poor study habits, poor self-image, ill-advised high school curriculum decisions, and other factors which produce the disadvantaged student who is currently seeking admission to postsecondary institutions.

Recommendation #7. Personnel

That the Office of Education encourage and colleges and universities support the nationwide skills programs in establishing associate, baccalaureate, master's and doctoral programs to prepare technicians, paraprofessionals, specialists, and professionals able to staff elementary, secondary, and postsecondary developmental skills programs.

Rationale:

Empathy and ethnic or cultural identity, though commendable in developmental skills specialists, are not of themselves sufficient for effectively helping students overcome academic problems and deficiencies. Highly skilled personnel are required to produce the results and competency outcomes expected at each level of schooling. Only colleges and universities can systematically train and prepare the required new professionals for the developmental skills programs.

It is urgent that colleges and universities realize that socioeconomic, cultural, and personality factors exist which have produced, are producing, and will continue to produce the disadvantaged student. Thus there will continue to be a need for elementary, secondary, and postsecondary programs staffed by highly skilled developmental personnel. In other words, the problem of the disadvantaged high risk student is not a passing phenomenon to be met by an ad hoc response; although with proper programming at the elementary and secondary levels, it could be expected that by the end of the 1980's such students would no longer be considered high risk by colleges because their academic deficiencies would already have been eradicated.

Implementation

Universal postsecondary access, achievement, and graduation cannot be a reality without nationally-established competencies for both of the prior levels, elementary and secondary. To ensure greater equity in postsecondary institutional choices, and wider professional and career choices, an integrated plan of action will be required within federal, state, and local political and educational agencies. It will be necessary for these governmental bodies to make necessary monies available to implement and integrate comprehensive developmental skills programs to overcome basic academic deficiencies currently present at all levels from grade one through four years of collegiate education.

Talent Search, Upward Bound, and Special Academic Services may be regarded as initial pilot components in the attempt to assist the academically disadvantaged student who is from a low-income family. These programs have not, however, focused on all students who have academic deficiencies, but primarily on those who are most needy financially. Their remediation efforts were the first national response to the "crisis situation" that arose with the emergence of the disadvantaged student on college and university campuses after the passage of the Higher Education Act in 1965. They still constitute a limited "crisis response" to the few they can reach with limited budgets and resources. We are advocating a more efficient total response at all levels.

The locus of the national developmental competency-based plan proposed in this report is within the regular program for students at all levels of schooling. This plan involves, first, the setting of national competency norms to be used in making a comprehensive needs assessment of all students. Such a plan would aim to direct the student to achieve the developmental tasks proper to his stage of development and required by his level of education.

This national program, then, is conceived as an integral component of the educational system at all levels. The Trio programs (Talent Search, Upward Bound and Special Services) have been a "crisis response," and never achieved a higher status than appendages to the regular academic curricula and programs. Their response was admittedly too little, and for many students deficient in basic academic skills, much too late. We are advocating a restructuring of the elementary and secondary scheduling to include and incorporate a block of time for developmental skills implementation, assessment, and evaluation as a continuing and normal part of the educational structure and process. This new approach necessarily includes revision of present language arts, reading, writing and math classes which have traditionally attempted to teach the developmental skills. It also calls for a trained developmental skills teacher rather than a teacher trained in college literature courses or in general elementary curricula. On the postsecondary level we are recommending a competency-based program guided by specific measurable objectives and incorporated into the regular structure of the institution. The developmental skills program should have equal status with other academic programs in the institution.

In recent years there have been many attempts to aid postsecondary disadvantaged populations on the federal, state, and institutional level. Success to date has been overshadowed by the inability to cope, on a demonstrable scale, with the major problems and deficiencies of academic high risk students. The task is a national one, far beyond the resources and skills of any one institution. A cooperative plan must, therefore, be mounted whereby each major academic institutional level contributes that which it is best equipped to contribute. Academic needs, consequently, can be met when and as they emerge preventing the insuperable problem of accumulated and compounded deficiencies. When needs are encountered as they arise, solutions are more practicable. The comprehensive developmental skills program advocated here would eventually obviate or absorb many present overly specialized and expensive efforts aimed at equalizing educational opportunities for disadvantaged populations.

Our recommendations for the most part are in keeping with recent trends in accountability, in management by objectives, and developments in evaluative research and analysis. The seven recommendations are designed as a comprehensive and continuing path toward the national objective of equalizing educational opportunities. The necessary implementation steps over the next decade can be summarized as follows:

The Federal Government will:

- Set nationwide standards for the basic developmental skills: oral and written communications skills, and math skills.
- Establish or contract research teams to begin pilot developmental programs on all levels within the regular academic curricula as normal and legitimate academic components.
- Establish a comprehensive evaluation plan for developmental skills programs.

- Continue present financial aid programs for disadvantaged youth on all levels, while proceeding with the implementation of the national plan.

- Provide funding for implementation of recommendations.

The State Government will:

- Establish a body to ensure that national standards be adhered to and attained at state and local levels.

- Assume greater responsibilities for establishing and measuring competencies.

- Provide adequate support to maintain the quality of developmental skills programs.

- Cooperate and support experimental pilot developmental skills programs in the state.

- Certify teachers and other personnel trained for developmental skills programs.

Colleges and Universities will:

- Carefully study and evaluate existing developmental studies programs with an eye to adjustment and improvement.

- Consider resources and capacity for training technicians, paraprofessionals, specialists, and professionals to operate, implement, counsel and teach in developmental skills programs.

- Consider initiatory role in providing workshops, seminars, and conferences to discuss possible manifest and latent consequences of implementation of developmental skills programs into the regular academic curricula on the elementary and secondary levels and incorporating the postsecondary developmental skills program into the structure of the institution.

- University based social scientists and specialists in measurement and evaluation techniques will assist in developing measures for needs and skill assessment for all levels of schooling; carry out evaluative research and analysis on the proposed national developmental program.

Elementary and
Secondary Institutions will:

- Establish competency levels for developmental skills from grades one through twelve in accordance with national guidelines.
- Provide for the implementation of the developmental skills program.
- Provide for management information and feedback systems to assure program effectiveness and efficiency.
- Evaluate the developmental skills program according to the guidelines established by the federal government in the comprehensive evaluation plan.
- Assure that only trained developmental personnel teach and administer the developmental skills program.
- Provide a comprehensive needs assessment for diagnostic planning, treatment and accountability purposes.

As stated at the beginning of this chapter, many responses have been put forward to meet the enduring problem of the disadvantaged population. After evaluating the basic and evaluative research on the subject, and assessing the limited and piecemeal programmatic responses developed during the past ten years, we are convinced of the compelling urgency of a national integrated and comprehensive program.

There is at stake a policy decision of considerable magnitude--whether to continue meeting the problems with disparate and uncoordinated efforts or to meet the problem with an enduring response integrated into the structure and fabric of the educational system.

APPENDIX A
POSTSECONDARY INSTITUTIONS

Table 1. Collegiate Sector of Postsecondary Education: Institutions and Enrollment, by Type of Institution,* 1972-73

Institutional Type	Institutions			Enrollment**		
	Public	Private	Total	Public	Private	Total
Leading research universities	26	20	46	809,701	230,056	1,039,757
Other research univerisities	30	18	48	602,475	156,769	760,244
Large doctorate granting institutions	23	12	35	299,662	135,762	435,424
Small doctorate granting institutions	22	14	36	279,612	109,270	388,882
Comprehensive colleges with substantial program offerings	214	92	306	1,787,193	421,618	2,208,811
Comprehensive colleges with limited program offerings	114	57	171	471,327	129,258	600,585
Highly selective liberal arts colleges	1	144	145	2,246	190,144	192,390
Other liberal arts colleges	31	537	568	57,271	467,305	524,576
Two-year colleges and institutions	882	251	1,133	2,671,377	129,278	2,800,655
Divinity schools	0	219	219	0	65,989	65,989
Medical schools and centers	30	15	45	54,940	9,675	64,615
Other health professions schools	6	21	27	3,585	9,734	13,319
Schools of engineering and technology	7	32	39	20,829	52,212	75,041
Schools of business and management	1	26	27	13,821	41,168	54,989

Table 1. Collegiate Sector of Postsecondary Education: Institutions and Enrollment, by Type of Institution,* 1972-73 (Continued)

Institutional Type	Institutions			Enrollment**		
	Public	Private	Total	Public	Private	Total
Schools of art, music and design ..	4	48	52	2,525	32,891	35,506
Schools of law	1	10	11	1,525	9,302	10,827
Teachers colleges ...	1	7	8	1,063	8,360	9,423
Other specialized institutions	17	15*	32	38,392	8,526	46,918
TOTAL	1,410	1,538	2,948*	7,127,544	2,207,407	9,334,951

Source: Carnegie Commission of Higher Education, Classified List of Educational Institutions, 1973, U.S. Office of Education, Opening Fall Enrollment, 1972-73, a preliminary report.

*Branch campuses are treated as separate institutions. The Higher Education General Information Survey (HEGIS) total, which does not count branch campuses separately, is 2,686.

**Individuals.

Adapted by the National Commission on the Financing of Postsecondary Education, Financing Postsecondary Education in the United States, Washington, D. C., 1973. P. 15

Table 2. Noncollegiate Sector of Postsecondary Education, Estimated Number of Institutions by Type and Control, 1970-71

Institutional Type	Public	Proprietary	Nonprofit	Sectarian	Total
Technical/Vocational .	560	423	40	4	1,027
Technical Institute ..	122	161	23	0	306
Business/Commerical ..	5	940	20	2	967
Cosmetology	4	1,475	2	0	1,481
Flight School	3	1,332	10	0	1,345
Trades Schools	54	509	34	0	597
Correspondence	0	112	1	1	114
Hospital Schools	118	47	681	288	1,134
Other	15	20	10	0	45
Total	881	5,019	821	295	7,016

Source: Adapted from U.S. Office of Education, National Center for Educational Statistics, Directory of Postsecondary Schools with Occupational Programs, 1971 (Washington, D.C., 1973) Table 3, p. xix.

Adapted by the National Commission on the Financing of Postsecondary Education, Financing Postsecondary Education in the United States, Washington, D. C., 1973. P. 17

APPENDIX B
GENERAL EVALUATION FORM

Outline

I. ORIENTATION:

A. To Whom Is the Study Oriented?
B. Statement of Problem or Objectives of the Study
C. Statement of Values
D. Statement of Ideology
E. Identification of the Disadvantaged Target Population
F. Statement of Approach, Theory or Framework of Study
G. Statement of Hypotheses
H. Guide to Major Variables
I. Guide to Indicators of Major Variables
J. Major Variables or Key Concepts Defined

II. METHODOLOGY:

(1) Basic and Evaluative Research

A. Research Design
B. Variables and Indicators (measurement of)
C. Sampling Procedure
D. Suitability of Statistics

(2) Evaluative Research - Measurement by Objectives

A. Outcomes: Standards of Measurement
B. Effectiveness (C) Efficiency (D) Equity
E. Long Term - Short Term Goals

(3) Narrative Form Methodology

A. Narrative Form - Structure
B. Methodology (Evaluation of)
C. Factual Data

III. RESULTS

A. Findings
B. Conclusions
C. Recommendations

IV. PRESENTATION:

A. Presentation and Dissemination of Results
B. Communications

Name of Analyst: ______________
Time spent: __________________

DESCRIPTORS

Author(s): ______________________________
Title: ______________________ Source: ______________
Book, Newspaper, Journal, Other
Place of Publication: ______________ Publisher: ______________
Date of Publication: ________ Vol.: ___ Issue: ___ Pages: ______________
(Starting)(Ending)(Total

CLASSIFICATION OF STUDY: (Check one)

Class A - Narrative:
- Position paper ______
- Think-piece ______
- State-of-the-Art ______
- Congressional Hearing ______
- Other ______

Class C - Project Reports:
- Evaluation of total project ______
- Component of project ______

Class B - Special Reports:
- Carnegie Commission ______
- Report to Congress/President ______
- Report ot State Legislature/ Governor ______
- Other (specify) ______

Class D -
- Other research ______

CLASSIFICATION OF SPONSORS

Name of Sponsor: ______________________

Private
- Foundations ______
- Institutions ______
- Individuals ______

Federal ______
State ______
Local ______

International ______
Other ______
Undetermined ______
Missing ______

CONTENT AREA(S) OF STUDY

- Special recruiting procedures ______
- Entrance procedures ______
- Financial aid ______
- Compensatory programs:
  - Remedial ______
  - Developmental ______
  - Tutorial ______
  - Curricula ______
  - Special scheduling ______
  - Continuing education ______
- Environment:
  - Faculty ______
  - Student body ______
  - Ratio of minority ______
- Graduation procedures ______
- Placement programs ______
- Community participation ______
- Inter-collegiate programs (Consortium) ______

TYPE OF STUDY

Based on Origin of Data:
1. Primary empirical study (Original study) ____
2. Secondary empirical study- analysis of existing data (e.g. census, previous study) ____
3. Secondary empirical study- explain or refer to existing findings only ____
4. Non-empirical study ____

Based on Method:
1. Descriptive ______
2. Analytical ______
3. Exploratory ______

Based on Purpose:
1. Basic ______
2. Applied ______
3. Policy research ______

I. ORIENTATION

A. TO WHOM IS THE STUDY ORIENTED?

Did the author indicate the audience to whom the study is directed?

(Check one or more)

Policy-Makers:

0) Missing ______

1) Legislators: National ______
State ______
Local ______
2) Post-Secondary Institutional Administrators ______
3) Program Directors ______

Non-Policy Makers:

4) Interested Parties (vested interests) ______
5) General Public ______
6) Experts in the field + professionals ______

7) Other (specify): ______________________

Comment: ______________________________

____

____

B. STATEMENT OF PROBLEM OR OBJECTIVES OF STUDY:

What does the author identify as the central problem? (Quote author's words and give exact page reference)

____

____

____

____

____

____

____

____

1. Evaluation of Problem or Objectives of Study:

   a. Clarity of Statement:

      3) Adequate: Statement is unambiguous and includes precise description of research objectives ________

      2) Inadequate: Problem must be inferred from incomplete or unclear statement ________

      1) None: ________

      0) Does not apply: ________

Comment on clarity of statement of problem: ____________________

____

____

____

   b. Aspect of Problem:

      3) Adequate: One or more aspects of the problem stated clearly ________

      2) Inadequate: The aspects of the problem are stated but not clearly or lead to confusion ________

      1) None: No aspects specified ________

      0) Does not apply: ________

Comment on the aspects of the problem: ____________________

____

____

____

c. Who determined objectives of study?

Does the author identify who determined the objectives of study?

4)	Superior:	The objectives and the intention of the research and/or study were determined by policy-makers	____
3)	Adequate:	The objectives and the intention of the research and/or study were determined by the researcher with the approval of the policy-makers	____
2)	Inadequate:	Policy-makers where not consulted in the formulation or finalization of objectives.	____
1)	Missing:	No reference is made to policy-makers role in determining the objectives of the study.	____
0)	Does not apply:		____

Comment on the role of policy-makers in determing the objectives of the study/research: ____

____

____

d. Documentation:

4)	Superior:	Details the evolution of the research problem from previous research findings	____
3)	Adequate:	Reference to previous research is reasonably complete	____
2)	Inadequate:	Documentation is incomplete	____
1)	None:	No reference to previous research or documentation	____
0)	Does not apply:		____

Comment on documentation: ____

____

____

C. STATEMENT OF VALUES:

Which of the following values does the author state or imply as that which highlights the problem of disadvantaged students:

(Check one or more.)

- "Every person has a right to an equal opportunity to receive an education of high quality regardless of his race, color, religion, sex, national origin, or social class." ________
- All individuals having the desire and ability to continue their education have a right to equal access to post-secondary education of their choice. ________
- Post-secondary education is necessary for fulfillment of personal potentialities. ________
- Post-secondary education is necessary to equalize access to the more valued occupations. ________
- Open access to higher education is a value in itself. ________
- Higher education advances the economic development of a nation. ________
- Higher education contributes to the quality of life in general. ________
- Higher education is necessary to break the cycle of poverty. ________
- Post-secondary education is necessary for social mobility. ________
- With occupational selection, training, and certification carried out mainly through the schools, and particularly in post-secondary institutions, life chances will not be equal until opportunities for advanced education are equal. ________
- Unequal opportunity of access to post-secondary educational institutions because of disadvantages due to race, color, creed, social status, lack of skills, poor schools or financial condition is undemocratic. ________
- Post-secondary education is increasingly the prerequisite to social responsibility. ________
- Education is a form of human capital because it is the source of future satisfactions, or of future earnings, or both of these. ________
- Other (specify): ________________________________

____

D. STATEMENT OF IDEOLOGY:

The values assumed or stated by the author are part of an ideological system:

(Check one or more)

- Does not apply or cannot be determined ________
- Reactionary (return to past) ________
- Conservative (retain status quo) ________
- Liberal (reform of status quo thru intervention from within.) ________
- Radical:
  - Marked by considerable or extreme departure from status quo ________

Comment on ideology: ____

____

____

____

____

____

E. IDENTIFICATION OF THE DISADVANTAGED TARGET POPULATION:

(Use author's own words)____

____

____

____

____

____

____

EVALUATION OF STATEMENT OF TARGET POPULATION.

1. Classification of disadvantaged target population.

3) Adequate: The identification of disadvantaged target population which was to benefit from the program, was categorized according to one or more of the following characteristics. Check one or more.

- Age (17 to 23) ______ (24 years old and over) ______
- Sex: Male ______ Female ______
- Marital status: ______
- Socio-economic status: ______
- Personality characteristics:
  - Lack of cognitive skills and habits of study ______
  - Lack of motivation ______
  - Negative attitudes ______
  - Lack of scholastic achievement ______
- Socio-Cultural disadvantages:
  - Beliefs, norms and values regarding the advantages of post-secondary missing ______
  - Low parental education ______
  - Poor quality of schools ______
  - Poor quality of teachers ______
- Discrimination based on race or ethnicity:
  - American Indian ___ Black Americans ___
  - Latino-Americans ___ Asian Americans ___
  - White Ethnics ___ Other (specify) ______
- Disadvantages based on location ______
- Other Characteristics ______

2) Inadequate: The disadvantaged were not clearly categorized. ______

1) Missing: ______

Comment: ______

F. STATEMENT OF APPROACH, THEORY, OR FRAMEWORK OF STUDY:
(Quote the author's words where possible and give page reference.)

Indicate the author's theoretical approach or conceptual framework or model used:

THEORETICAL APPROACHES: Check one or more

1. Structure-Process Approach
   - . Anthropological Approach ________
   - . Structure-functional Approach ________
   - . System's Cybernetic Approach ________
   - . Organizational Approach ________
   - . Process Approach ________
2. Social-Psychological Approach:
   - . Socialization Approaches
     - . Learning ________
     - . Perception ________
     - . Motivation ________
     - . Other ________
   - . Developmental Approach ________
   - . Psychoanalytical Approach ________
   - . Other ________
3. The Economic Approach:
   - . The Input-Output Approach ________
   - . Methods of Financial Aid ________
   - . Other ________
4. The Historical Approach: ________
5. The Legal Approach: ________
6. A Priori Approaches:
   - . Ideological ________
   - . Philosophical ________
7. Experiential ________
8. Other: (Please specify) ________________________________

EVALUATION OF THEORETICAL ORIENTATION:

1. Clarity:

3) Adequate: Theoretical position stated ________
2) Inadequate: Theoretical position not stated but is implied ________
0) Does not apply: ________

Comment on theoretical orientation: ________________________________

2. Interpretation of Theory or Framework:

3)	Adequate:	Theory is accurately stated, interpreted and explained.	______
3)	Inadequate:	Theory is accurately stated, but not correctly interpreted for the purpose of the study.	______
0)	Does not apply:		______

Comment on the interpretation of the theory: ______

______

______

G. STATEMENT OF HYPOTHESES:

Hypothesis No. ______

(Quote author's words and give page reference.): ______

______

______

______

______

______

EVALUATION OF STATEMENT OF HYPOTHESIS:

Hypothesis No. ______

1. Clarity:

3)	Adequate:	Hypothesis was stated in concise propositions and the variables were conceptionally and operationally defined.	______
3)	Inadequate:	Hypothesis not stated in formal propositions nor were the terms defined.	______
0)	Does not apply:		______

Comment on the clarity of hypothesis: ______

______

______

2. Logical Inference:

4)	Valid:	The inference of the hypothesis from the theoretical position of the author was logical and valid	______
2)	Invalid:	The inference of the hypothesis from the author's theory was not logical.	______
0)	Does not apply:		______

Comment on the logical consistency of the hypothesis: ______

______

3. Specificity:
   3) Adequate: The hypothesis had empirical referents and was stated in concrete testable or specific terms. ____
   2) Inadequate: The hypothesis has little empirical referents or was stated in too general terms to be tested ____
   1) Missing: ____
   0) Does not apply: ____

Comment on the specificity of the hypothesis: ____________

____

____

H. GUIDE TO MAJOR VARIABLES:

CODE

01 - Opportunity
02 - Socio-economic status (class)
03 - Life success
04 - Results (outcome)
05 - Admissions
06 - Financial aid
07 - Institutional measures
08 - Supportive services
09 - Environment

Recurrent Education

10 - Including part-time study
11 - Work-study programs
12 - Education on the jobs
13 - Various other types of continuing education of general and technical character.

Psychological Factors

14 - Development of cognitive and affective competencies
15 - Development of academic (performance) competencies
16 - The influence of significant others
17 - The stimulation of educational and occupational aspirations
18 - Development of personal potentialities
19 - Prior academic deficiencies.
20 - Faculty and student achievement

I. GUIDE TO INDICATORS OF MAJOR VARIABLES

CODE

Socio-economic Status

001 - Parental income
002 - Father's educational attainment
003 - Mother's educational attainment
004 - Father's occupation
005 - Others

Opportunity for Post-Secondary Education

010 - Missing
011 - Admission to a post-secondary institution (equality of access)
012 - Graduation from a post-secondary institution
013 - Admission to professional or graduate study
014 - Admission to various channels of development--apprenticeship program, service programs or part-time training.
015 - Other

Life Success

020 - Missing
021 - Job opportunity
022 - Amount of income
023 - Social class mobility
024 - General life expectations
025 - Other

Results (outcome)

030 - Missing
031 - Equality of opportunity with differentiated results
032 - Flat equality of results in terms of grades and degrees regardless of ability or effort
033 - Other

Admissions - Special Recruiting

040 - Missing
041 - Talent search
042 - Upward bound
043 - Minority students as recruitors
044 - Means for identifying and encouraging qualified high school graduates to continue education
045 - Other programs

Special Admission Process

050 - Missing
051 - Test scores combined with #2, 3 and 4.

052 - General knowledge of the characteristics of minorities
053 - General knowledge of low income background
054 - Special counselling service
055 - Consultation and recommendations from non-traditional sources--ministers, neighbors, community agency personnel, students.
056 - Student's assessment of himself
057 - Student's personal and educational goals.
058 - Personal interviews
059 - Intuitive assessment based on personal contact
061 - Dual system or quota system
062 - Open admission
063 - Other

Traditional Process

070 - Missing
071 - High school achievement (Grade point average GPA)
072 - Standardized college admissions examinations (ACT, SAT)
073 - Undergraduate grade point average
074 - Graduate Record Examinations (GRE)
075 - Other

Financial Assistance - Federal Programs

080 - Missing
081 - Educational Opportunity Grants (EOG)
082 - Basic Educational Opportunity Grant (BEOG)
083 - College Workstudy Program (1965)
084 - National Defense Students Loans (1958)
085 - Federally Insured Loans
086 - Specialized Programs in the Sciences (physical, biological, medical)
087 - G.I. Bill
088 - Other

State Scholarship Programs

090 - Missing
091 - Competitive examinations - choice of field & choice of college
092 - Non-competitive scholarships to encourage specific groups such as nursing and medical.
093 - Other

Institutional Financial Assistance

100 - Missing
101 - Scholarships
102 - Grants
103 - Campus part-time work
104 - Off-campus part-time work
105 - Other

Assessment of Financial Assistance

110 - Missing
111 - Parent's financial statement
112 - A realistic estimate of the expenses for a particular student at a particular time.
113 - Inquiry into what the student himself should provide toward his educational expenses.
114 - An inquiry into what the student's family might fairly be expected to contribute
115 - A knowledge of what outside agencies may be aiding the students.
116 - The readiness of the student's institution to help him find the remaining aid he would need to undertake, continue and complete his studies.

Other Financial Means

117 - Subsidy programs to those who need the subsidy
118 - Giving funds directly to students rather than to universities
119 - Paying the needy student's tuition, books, board, lodging, travel, and even a modest amount for the incidental personal expenses (to last as long as student does satisfactory progress in school).
120 - Other

Institutional Measures

130 - Missing
131 - Size of institution
132 - Type of institution - Technical
  - Vocational
  - Junior/Community College
  - Undergraduate four year college
  - University with graduate programs
  - Professional (Law, Medicine, etc.)
  - Private
  - Public

133 - Location of institution:
  . Commuting distance
  . Urban
  . Rural
  . Large metropolitan center

134 - Library resources
135 - Research opportunities
136 - Laboratories for remedial and enrichment programs
137 - Number of counsellors
138 - Number of Ph.D.'s
139 - A special tutoring and counseling program
140 - Total enrollment
141 - Ethnic and racial enrollment
142 - Percent graduating who can be classified as disadvantaged
143 - Other

Supportive Services: (Curricula, scheduling, counseling, and tutoring services)

150 - Missing
151 - Ethnic considerations in curriculum
152 - Cooperative ethnic programs (with neighboring institutions)
153 - Appropriate special programs, both remedial and cultural (Black studies/Chicano/American Indian)
154 - Provisions for continuing education - both general and technical
155 - Flexible scheduling, pacing and credit loads
156 - Programs to remedy prior academic deficiencies
157 - Other

Constructive Environment for Developmental Growth

160 - Missing
161 - Broad learning experiences (Cognitive competencies and emotional competencies)
162 - Specialized academic preparation
163 - Specialized occupational preparation
164 - Personal support-making available informal and formal advisory and counseling services (motivational competencies and work opportunities, etc.)
165 - Other

Recurrent Education

170 - Missing
171 - Including part-time study
172 - Work-study programs
173 - Education on the job
174 - Various other types of continuing education of both general and technical character

Opportunities for Development of Personal Potentialities of Such Psychological Factors As:

180 - Missing
181 - Development of cognitive and affective competencies
182 - Development of academic (performance) competencies
183 - The influence of significant others
184 - The stimulation of educational and occupational aspirations
185 - Other

Remedying Prior Academic Defeciencies

190 - Missing
191 - Remedial programs
192 - Supportive services
193 - Special counseling and tutoring
194 - Other

Faculty and Student Achievement

200 - Missing
201 - Minority on staff
202 - Ph.D.'s
203 - Empathy for disadvantaged
204 - Faculty participated in workshops/institutes to gain cultural understanding.
205 - Specially trained to deal with disadvantaged or have special competencies.
206 - Awareness of need to adapt to "mass enrollments" or open admissions.
207 - Other

J. MAJOR VARIABLES OR KEY CONCEPTS DEFINED

Write out the definitions of key variables and list the indicators used to measure them.

II. METHODOLOGY

(1) Basic and Evaluative Research

A. Research Design:

Check one or more

Pre-Experimental Design:

______ 01 - One shot case study
______ 02 - One group pretest-posttest design
______ 03 - Static-group comparison

True Experimental Design:

______ 11 - Pretest-posttest control group design
______ 12 - Solomon 4 - group design
______ 13 - Posttest only control group design
______ 14 - Factorial design
______ 15 - Other (Specify): ______________________

Quasi-Experimental Design:

______ 21 - Time Series experiment
______ 22 - Equivalent Time Samples Design
______ 23 - Equivalent Materials Design
______ 24 - Non-equivalent control group design
______ 25 - Counterbalanced Design
______ 26 - Separate-sample pretest-posttest control group design
______ 27 - Separate-sample pretest-posttest control group design
______ 28 - Multiple time-series design
______ 29 - Recurrent institutional cycle design a "patched-up" design
______ 30 - Regression-discontinuity analysis

Correlational and Ex Post Facto Design:

______ 41 - Panel Study
______ 42 - Lazarsfeld sixteen-fold table
______ 43 - Ex Post Facto analysis
______ 44 - Other (Please specify): ______________________

Sources of Errors: Controlled

Name of Research Design: ____________________ ____________________ ____________________	Design a.					The study b.			
	0 - Missing	1 - Controlled	2 - Definite Weakness	3 - Questionable	4 - Irrelevent	0 - Missing	1 - Controlled by other means	2 - Acknowledged but not controlled	3 - Ignored
Internal Sources:									
806 - History									
807 - Maturation									
808 - Testing									
810 - Instrumentation									
811 - Selection									
812 - Mortality									
813 - Interaction									

a. Did the design control for these sources of error?

b. If the design did not control for sources of error did the author use any other means of control?

If yes, please specify: ______________________________

____

____

____

____

ESSAY ON ERRORS IN RESEARCH DESIGN:

Identify errors by name:

Write out the reasons for errors:

Identify significance of errors on findings:

EVALUATION OF RESEARCH DESIGN:

The research design was suitable for the solution of the problem:

1. Suitability:

4)	Superior:	Problem is definitely solvable by this method or research design.	
3)	Adequate:	Solution of problem by this research design is possible.	
2)	Inadequate:	Only a partial or tentative solution can be obtained by this method or design.	
1)	Defective:	Problem cannot be solved by this method or design.	

Comment on the strengths and weaknesses of research design for the solution of the problem:

2. Replicability:

4)	Superior:	Replicable in detail from information given in regard to research design, sample size, statistical methods, mode of collecting data, and analysis.	______
3)	Adequate:	Replicable in detail with additional information from author(s).	______
2)	Inadequate:	Replicable in substance.	______
1)	Defective:	Not replicable	______

Comment on the replicability of study: ____________________

____

____

____

3. Specific Desirability:

5)	Most desired design:	Classical Fisherian experiments, preferably using factorial design.	______
4)	Highly desirable:	Quasi-experiments with impure control groups.	______
3)	Desirable:	Correlational designs in which statistical controls are used.	______
2)	Less desirable:	Program and project audits: qualitative judgements made by outside observers.	______
1)	Least desired:	Project and program administrators' narrative reports.	______

Comment on desirability: ______________________________

____

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____

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____

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B. Variables and Indicators (measurement of)

0 - Missing 1 - Split-half 2 - Reproducibility-Co-efficient 3 - Inter-test Reliability 4 - Others 5 - Irrelevant	Reliability											
0 - Missing 1 - Face Validity 2 - Concurrent Validity 3 - Predictive Validity 4 - Content Validity 5 - Construct Validity 6 - Other 7 - Irrelevant	Validity											
923 - Ratio Scale 924 - Interval Scales 925 - Ordinal Scales 926 - Nominal Scale	Measure-ment											
Control Variables												
Dependent Variable												
Inde-pendent: Policy Variable												
Inde-pendent: Situational Variable												
	INDICATORS											
	VARIABLE NO											

C. Sampling Procedure

1. Sources of data or means of data collection:

Check one

0 - Missing ______
1 - Interview ______
2 - Questionnaire ______
3 - Controlled observation ______
4 - Uncontrolled observation ______
5 - Census data ______
6 - Public document ______
7 - Previous study ______
8 - Other ______

2. Target population:

0 - Missing ______
1 - Identified ______
2 - Not identified ______
3 - Irrelevant ______

3. Name target population: ________________

4. Give total size of population if given: ______

5. Definition of target population used by author: __________

____
____
____
____
____

6. Type of sampling:

00 - Missing ______

Probability sampling
01 - Simple random sampling ______
02 - Systematic sampling ______
03 - Stratified sampling ______
04 - Cluster sampling ______
05 - Other ______

08 - Non-probability sampling ______
09 - None ______

7. Sampling unit of analysis: Identify whether the unit of analysis was:

01 - Student ______
02 - Institution ______
03 - Program ______
04 - Component part ______

8. Name of Institution: ______________________________

9. Name of Program: ______________________________

10. Name of Component part: ______________________________

11. Actual sample size: ______________________________

12. Sampling fraction - Actual: ________ %
(0.01 - 099%)

13. Evaluation of Sample or Field:

The sample size was:

4)	Superior:	Results are projectable with known small errors, or the entire universe has been enumerated	______
3)	Adequate:	Findings are projectable, but with errors of considerable, or unknown magnitude.	______
2)	Inadequate:	The cases studied are meaningful, but findings cannot be projected.	______
1)	Defective:	Sample is too small, or not suitable or biased, or of unknown sampling characteristics.	______

Essay comment on sample: ______________________________

____

____

____

D. Suitability of Statistics

1. Name and describe the statistics used: ____________________

2. Name the measurement level(s) used: ____________________

3. Name the sampling design: ____________________

4. Name the distribution: ____________________

5. Name the research design used: ____________________

	0 - Missing	1 - Yes	2 - Questionable	3 - No	4 - Irrelevant
6. 1006 - Are the measurement level(s) required by the statistics attained?					
7. 1007 - Does the sampling design fit the statistics?					
8. 1008 - Is the assumption of distribution justified?					
9. 1009 - Are the statistics used consistent with the research design?					
10. 1010 - Are the statistical results correctly interpreted?					

Comment: If the answer is "no" or "questionable" to any of the above questions, please comment.

(continue on back of page, if necessary)

(2) Evaluative Research

A. Outcome Measurement

In studies that deal with Programs, does the author specify whether the programs set standards of outcomes for components?

4) Adequate: The study explicity indicated specific standards of outcomes in measurable terms.

- financial aid ____
- entrance procedures ____
- counseling procedures ____
- remedial procedures ____
- developmental ____
- tutorials ____
- curricula ____
- special scheduling ____
- continuing education ____
- intercollegiate programs ____
- environment ____
- faculty ____
- students ____
- minority ____
- community participation ____
- graduation ____
- placement ____
- feedback ____
- other ____

2) Inadequate: Identified the standards of outcomes in a confused or general manner. ________

1) Missing: Did not identify standards of outcomes ________

0) Does not apply or cannot be determined ________

Comment on the statement of outcome:

B. Effectiveness (measurement of):

4) Superior: The effectiveness of program activities was measured by quantified immediate objectives (using ratio or interval scales) ______

3) Adequate: The effectiveness of program activities was measured by immediate objectives using at least ordinal scales. ______

2) Inadequate: The effectiveness of program activities measured by ultimate or remote objectives, or merely described in general terms. ______

1) Missing: The effectiveness of program activities was not measured or described. ______

0) Does not apply. ______

Comment______________________________

____

____

C. Efficiency (measurement of):

4) Superior: The efficiency of programs was measured by the ratio of units of inputs (time, money, manpower, resources to units of outcomes. (using ratio or interval scales) ______

3) Adequate: The efficiency of programs was measured ratio of units of incomes (time, money, manpower or resources) to outcomes (using at least ordinal scales). ______

2) Inadequate: The efficiency of programs was measured by the ratio of inputs to unmeasured outcomes (nominal scales). ______

1) Missing: There was no attempt to measure or describe the efficiency of programs. ______

0) Does not apply. ______

Comment______________________________

____

____

D. Equity

Ordering of objectives of program according to duration of time for achievement:

3) Adequate: The objectives were outlined as long term and/or short term. ____________

2) Inadeqate: The objectives were not ordered clearly into long and/or short term goals except in a confused manner. ____________

1) Missing: There was no long and/or short term ordering of objectives. ____________

0) Does not apply. ____________

Comment on the temporal ordering of objectives according to duration of time for achievement: ______________________________

____

____

____

E. Long-term, Short-term Goals

Ordering of objectives in programs according to needs.

3) Adequate: The objectives of the program were ranked clearly according to needs. ____________

2) Inadequate: The objectives were not clearly ranked according to needs but merely implied. ____________

1) Missing: Objectives were not ranked. ____________

0) Does not apply. ____________

Comment on the ordering of objectives according to equity: ______________________________

____

____

____

(3) NARRATIVE FORM: Methodology

A. Structure

Describe the methodology of the article (Structural steps of the article).

B. Methodology (Evaluation of)

Logical:

Methodology designed to persuade audience:

Other Comments:

C. Narrative Form: Factual Data

State the significant factual data put forward by the author regarding:

- Extent of problem: ________________________________
- Projections: ________________________________
- Other: ________________________________

Evaluation of factual data:

		Yes	No	Questionable.
. Sources	- Were the sources adequate for nature of article			
. Accuracy	- Were the sources trustworthy when given?			
.	- Were the projections trustworthy?			
. Relevance	- Were the facts relevant?			
. Significance	- Were the facts significant?			

Comment on the factual data: ________________________________

III. RESULTS

A. Findings No. ______

(Use author's own words and give page reference): ______________

____

____

____

____

EVALUATION OF FINDINGS NO. _____

1. ACCURACY:

4)	Superior:	Positive checks against errors were included in the procedure regarding conceptual and operational definitions, theoretical approach, data gathering, measurement and statistical analysis.	_____
3)	Adequate:	Errors unlikely with procedure used; no errors detected.	_____
2)	Substandard:	Errors likely with procedure used but no major errors detected	_____
1)	Defective:	Errors of calculation, transcription, dictation, logic, fact, definition, etc. detected.	_____

Comment on errors and identify: ______________________________

____

____

2. BIAS:

4)	Superior:	Positive precautions against bias were included in the procedure.	_____
3)	Adequate:	No evidence of bias detected.	_____
2)	Substandard:	Evidence of bias detected.	_____
1)	Defective:	Strong evidence of bias detected.	_____

Comment on evidence of bias: ______________________________

____

____

3. SIGNIFICANCE:

4)	High:	This finding is of importance to an understanding and solution of the problem on a national, regional or state level.	_____
3)	Medium:	This finding has potential to influence future work in the area of disadvantaged.	_____
2)	Low:	It is possible that this finding will have influence on future work, but not likely.	_____
1)	None:	The finding is not significant to the understanding or solution or study of the problem.	_____

Comment on significance: ______________________________

B. Conclusions

No. _____

(Use author's words and give page reference): ____________________

EVALUATION OF CONCLUSIONS OR INTERPRETATIONS OF RESULTS

1. INTERNAL VALIDITY: The conclusion is consistent with the scope and method, and logically follows from the results of the experiment or study.

Yes	No	Questionable

Comment on sources for internal invalidity: ____________________

2. EXTERNAL VALIDITY: Generalizability - to what other populations, settings, treatment variables, measurement variables can the results of the study be generalized? The conclusions can be generalized to cover other programs, etc. because of the sample, size, scope, research design, methods, statistics used.

Yes	No	Questionable

Comment on reasons for lack of generalizability: ____________________

3. EXTERNAL VALIDITY: Consistency with other findings.

The interpretation of results is consistent with the significant findings in the field

Most	Some	None	Questionable

Comment on external consistency: ____________________

C. Recommendations

Recommendation No.: _______

Statement of recommendation in author's words (give page reference): ____

____

____

____

____

Evaluation of Recommendation No.: _____

1. Source: What is the recommendation based upon:

   a. Authors study _____
   b. Value system _____
   c. Both _____

2 What definition of inequality is implied by this study (i.e. what inequality does it seek to remove): ______

____

____

____

3. Did the study test the strength of the relationship between the independent and dependent variables in the recommendation?
Yes ( ); No ( ); Questionable ( ).

4. If yes, what was the strength of the correlation: ___

____

____

____

5. What was the nature of the relationship between the independent and dependent variables? ________________

____

____

____

6. Validity: (internal). Does the recommendation follow logically from the results of the study, i.e., is it in conformity with the results of the study?
Yes ( ), No ( ), Questionable ( ).

7. Validity: (external). Is the recommendation in conformity with the results of other adequate studies in the field?
Yes ( ), No ( ), Questionable ( ).

8. Consistency:

   . Is the recommendation consistent with the objectives of the study?
   Yes ( ), No ( ), Questionable ( ).

   . Is the recommendation consistent with other recommendations of the study?
   Yes ( ), No ( ), Questionable ( ).

   . Are the objectives of recommendations:
      . long-ranged _____
      . short-ranged _____

9. Does the recommendation advocate:

	(Check One)
. Total change of goals (alternative)	_____
. Modification of goals	_____
. No change of goals	_____

10. Target Population:

Were the recommendations for benefit of:

	(Check One)
. All disadvantaged groups	_____
. Specific disadvantaged group	_____

If yes, please specify: ______________________________
____
____

11. Policy:

What course of action does the recommendation suggest?

	(Check One)
. Continuation of existing policy	_____
. Total alteration of existing policy	_____
. Modification of existing policy	_____

12. Is the independent variable in the recommendation a policy variable, i.e., can be manipulated by policy-makers?
Yes ( ), No ( ), Questionable ( ).

	Yes	No	Questionable.
13. It is essential to consider reality limitations, does the recommendation keep within the range of the following boundaries?			
. Economic boundaries of policy makers			
. The political boundaries, such as, pressure groups resistance(invested interests)			
. Legal boundaries			
. Social boundaries: norms + ethical			
values			
beliefs			
. Personality boundaries of disadvantaged group			
. Time boundaries available to policy makers (deadlines)			
. Location boundaries			
. Availability of resources			
14. EFFORT: Did the study contain an estimate of the "EFFORT" implied by this recommendation?			
. Time			
. Money			
. Manpower			
15. EQUITY: Did the study estimate the fairness of distribution according to need implied by this recommendation?			
16. EFFECTIVENESS: Did the study involve a measurement of the probability of achieving objectives through this recommendation?			
17. EFFICIENCY: Did the study include an estimate of the relative effort/effectiveness ratio of this recommendation?			
18. Did the study contain an estimate of the cost-benefits (i.e. for society) of this recommendation?			
19. Did the study contain an estimate of:			
a. The manifest positive outcomes of the recommendation			
b. The unforeseen positive outcomes of the recommendation			

	YES	NO	QUESTIONABLE
c. The manifest negative outcomes of the recommendation			
d. The unforeseen negative outcomes of the recommendation			

20. Comment: If yes to any of the above (19 items) beiefly outline them here:

____

____

____

____

____

____

____

____

IV. PRESENTATION

A. Presentation and Dissemination of Results

	YES	NO	QUESTIONABLE
1. Traditional format and language of basic research were used, i.e.,			
. Books			
. Articles (professional journals)			
. Papers read at professional meetings			
. Stencilled reports			
2. Research was in a format and language so that research results could be communicated without loss of meaning to policy-makers and general public.			
3. The final report was complete, i.e.,			
. It was more than a summary			
. It was more than a rewrite in idiomatic English (idiomatic English without tables and references is not acceptable policy reporting)			
. It was well documented			
4. The report is comprehensible, i.e.,			
. It was not filled with sophisticated scientific jargon and complex statistics			
. It was written in popular language			
. It used graphs, tables and a minimum of statistics for clarifying its data and results.			
5. The sequence of the report is both logical and takes into account expected opposition, i.e., resistance of policy-makers on the			
. Emotional level			
. Cognitive level			
. Self-interest			

B. Communication

	Yes	No	Questionable	No Indication.
1. Researcher adopted, supported and recommended the policy to policy-makers through various means, i.e.,				
. during the research period	___	___	___	___
. at the conclusion of the research	___	___	___	___
. at the time of decision making and searching for alternatives	___	___	___	___
2. Granting some expected opposition from policy-makers the researcher provided pre-socialization (that is, preparing the audience/policy-maker for the report).	___	___	___	___
3. Follow-up reports were used to keep the findings and recommendations (current and) alive.				

Comment on Communication and Presentation: ______________________

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APPENDIX C
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APPENDIX D

ASSESSMENT OF THE LITERATURE IN GENERAL

General Classification of Literature Evaluated

In assessing the literature on equalizing educational opportunities for the disadvantaged a distinction between the form and the content of the literature was applied. This distinction was considered important because internal and external validity pertain to the form of literature rather than to the content. On the other hand, content is critical to policy makers and needs to be clearly identified.

The assessed literature on equalizing educational opportunities for disadvantaged youth fell into four main forms which were categorized as:

- Narrative form - state of the art and position papers.
- Policy Analysis - national task force and commission reports, such as, the Carnegie Commission Reports, reports to the Congress of the United States or to the President.
- Evaluative Research - evaluation reports on compensatory programs or components of programs designed to equalize educational opportunities.
- Basic Research - exploratory, descriptive and analytical studies.

From the point of view of content, two main areas emerged from the literature: the study of variables which affect and are related to students from disadvantaged environments and, the study of programs designed to counteract the impact of these variables. Consequently, three chapters were arranged: 1) to give a brief survey of the literary forms utilized in studying the problem of equalizing educational opportunities (Chapter Two); 2) to evaluate research on specific variables to obtain information on those factors which affect the entrance, persistence, and achievement of students from disadvantaged environments in postsecondary institutions (Chapter Three); and 3) to analyze the evaluative research dealing with the equity, effectiveness and efficiency of programs and components of programs (Chapter Four).

Most studies utilized a combination of forms making it difficult to identify the main category to which a given piece of literature pertained. Likewise, the 128 works analyzed dealt with several aspects of educating the disadvantaged student and equalizing educational opportunities rather than one specific component. Because many variables and components of programs were studied concurrently, considerable overlapping of form and content resulted.

Source of Data

The source of data was another basis of distinction. Sixty-five studies, or fifty-one percent, were based on data the author himself collected. Twenty-seven studies, or twenty-one percent of the evaluated works, utilized census data and previous studies. In fact, it was remarkable to note how often the same sources--Census Data, Project TALENT, and the Wisconsin Studies--were used, either for re-analysis, for longitudinal studies, or for bolstering one's own position. For illustrative purposes, Table 1 shows the types of sources used in the 128 works assessed.

TABLE 1. SOURCES OF DATA (N = 128)

Source	Number	Percentage
Primary empirical study: original studies	65	51
Secondary empirical study: analysis of existing data, e.g., census, previous study	27	21
Secondary empirical study: explanation or reference to existing findings only	13	10
Non-empirical study	23	18
Total	128	100

Of the 128 studies individually evaluated, forty studies were classified primarily as basic research; forty-seven primarily as evaluative research (including policy analysis), and forty-one primarily fitted the narrative form. All of these 128 works were also examined for the content area they covered. Table 2 presents the type and number of content areas considered.

TABLE 2. CONTENT AREA (S) OF STUDIES

Content Area	Number*	Percentage*
Special recruiting procedures	35	28
Entrance procedures	39	31
Financial aid	52	42
Compensatory programs		
Remedial	41	33
Developmental	28	22
Tutorial	27	22
Curricula	32	26
Special scheduling	13	10
Continuing education	6	5
Counseling programs	30	24
Environment		
Faculty	18	14
Student body	27	22
Ratio of minority	19	15
Graduation procedures	1	0.8
Placement programs	7	6
Community participation	11	9
Inter-collegiate programs (consortium)	3	2
Neighborhood	2	2
Personality factors	40	33
Transfers	1	0.8
Other	9	7

*Totals exceed 100% because of overlapping

In literature on equalizing educational opportunities for the disadvantaged, an author rarely confines himself to one limited area, such as, admissions, counseling, etc. Most have something to say about all or many of the various subject areas in this field because these components in combination constitute a total developmental/compensatory program. Consequently there is an overlap when it comes to classifying the works reviewed according to content.

Sponsors

The studies we evaluated had various sponsors. Federal agencies sponsored forty-seven studies, or 36.7 percent. The next largest group, numbering thirty-nine or 30.6 percent, had sponsoring foundations or institutions or were individually supported. Thirty-one did not indicate their sponsor, if any. The policy related research carried on by the social sciences is currently supported by the government, by a variety of clients and publics, and by a number of foundations and research centers. Table 3 lists the number and percentage of sponsors who supported the works which were reviewed in our study.

TABLE 3. CLASSIFICATION OF SPONSORS (N = 128)

Sponsors	Number	Percentage
Federal Agency	47	36.7
State Agency	3	2.3
Local Government	3	2.3
International	1	0.8
Private	39	30.6
Other	4	3.1
Missing	31	24.2
Total	128	100.0

Results of General Evaluation

Evaluation Instrument

One general evaluation form (which consisted of four main sections and many subcategories) was designed for the evaluation of the 128 selected works. This permitted flexibility in applying the most appropriate parts of the evaluation instrument where pertinent. The use of the complex instrument, likewise, helped to provide for inter-reviewer consistency. In this Appendix we will summarize the more important results under the four major parts of our instrument: 1) Orientation; 2) Methodology; 3) Findings, Conclusions and Recommendations and, 4) Presentation and Communication.

Section I: Orientation

Several factors were considered under orientation: problem definition; values assumed or stated; ideological orientation; theoretical or conceptual framework; hypotheses and definitions of major variables.

Problem Definition

By far the majority of the works evaluated were adequate in the specification of the problems under study both as regards clarity of statement and specification of target population. Documentation was, in general, adequate. The impact of traditional scholarship is undoubtedly evident in the rather high number of works found with an adequate and clear statement of the problem (sixty-nine percent); adequate documentation (sixty-two percent); and a clear statement of specific aspects of the problem studied (seventy-six percent). Table 4 shows the overall results of the assessed literature on five of the orientation items.

TABLE 4. ORIENTATION EVALUATION (N=128)

Item	Adequate		Inadequate		Missing		DNA	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Statement of problem: Clarity	88	69%	19	15%	1	1%	20	16%
Aspects of problem specified	97	76	9	7	2	2	20	16
Determinators of objectives specified	21	17	3	2	77	60	27	21
Documentation adequate	79	62	12	10	15	12	21	17
Target population specified	77	60	11	9	22	17	18	14

Values

An important element appearing constantly throughout the discussion of evaluative research was that of values. Evaluation originates from some value, either stated or assumed, such as, desirability of postsecondary education for social mobility, from which goals are then formulated. After goals are set, the problem of priorities arises, for goals compete for limited money and resources.

The value-orientation of one's objectives constitutes a major distinction between evaluative research and basic research. Programs designed to equalize educational opportunities must first affirm the inherent value of postsecondary education; then foster the belief that it is undesirable for an individual to be denied the benefits of postsecondary educational opportunities. This value finally must be translated into an operative decision on the part of the individual to give up an immediate income or job opportunity, and to make education the preferred activity of the next two to four years. One's value system determines both objectives and priorities. Table 5 shows the distribution of value assumptions found in the works evaluated.

TABLE 5. STATEMENT OF VALUES IN WORKS EVALUATED

Statement	Number Of Works	Percent
Every person has a right to an equal opportunity to receive an education of high quality regardless of his race, color, religion, sex, national origin, or social class.	55	44 %
All individuals having the desire and ability to continue their education have a right to equal access to postsecondary education of their choice.	47	38

STATEMENT OF VALUES (continued)

Statement	Number Of Works	Percent
Postsecondary education is necessary for social mobility.	37	30%
Postsecondary education is necessary to equalize access to the more valued occupations.	37	30
Unequal opportunity of access to postsecondary educational institutions because of disadvantages due to race, color, creed, social status, lack of skills, poor schools, or financial conditions is undemocratic.	35	28
With occupational selection, training, and certification carried out mainly through the schools, and particularly in postsecondary institutions, life chances will not be equal until opportunities for advanced education are equal.	34	27
Education is a form of human capital because it is the source of future satisfaction, or of future earnings, or both of these.	31	25
Higher education is necessary to break the cycle of poverty.	30	24
Open access to higher education is a value in itself.	23	18
Postsecondary education is increasingly the prerequisite to social responsibility.	23	18
Higher education contributes to the quality of life in general.	22	18
Postsecondary education is necessary for fulfillment of personal potentialities.	21	18
Higher education advances the economic development of a nation.	8	6

*Percentages equal more than 100 % because many studies state or imply several values.

The most widely held value assumption or belief found in the literature, forty-four percent, is that every person has a right to an equal opportunity to receive an education of high quality regardless of his race, color, religion, sex, national origin, or social class. It is noteworthy that this value coincides with national policy written into the Education Amendments of 1972 (Sec. 405). The value holding second place in the literature, thirty-eight percent, was that all individuals having the desire and ability to continue their education have a right to equal access to postsecondary education of their choice. Thirty percent of the literature held that postsecondary education is necessary for social mobility and that postsecondary is necessary to equalize access to the more valued occupations. Also rather widespread is the belief that inequality of opportunity is undemocratic, twenty-eight percent. The assumption that postsecondary education is essential for the fulfillment of personal potential was rather infrequent in the literature, eighteen percent. Also rarely found was the belief that open-access is an end in itself, eighteen percent; and lowest, six percent, was the assumption that higher education advances the economic development of the nation. That higher education is necessary to break the cycle of poverty was the main assumption in only one-fourth of the items evaluated, twenty-four percent.

The network of unproven assumptions or beliefs which affect action is called an ideology. Ideologies are often more influential in determining the direction of a study and its ultimate recommendations than a single value or assumption. The literature we evaluated was most influenced by a liberal ideology, sixty-four percent. No specific ideology was explicit or implicit in thirty-three percent of the literature--particularly in analytic studies.

Ideologies may well have more impact, at times unconsciously, on the evaluation outcomes than even the theoretical approach. A great variety of theoretical approaches were found which can be summarized as follows: thirty-five or twenty-seven percent of the studies began from a non-scientific position--primarily experiential, philosophical, or ideological; a socio-psychological approach predominated in forty studies, or thirty-one percent of those examined, which is not surprising in studies of learning, motivation, or minority-majority relations. The historical approach was strong in twenty-one, or sixteen percent; while the economic approach was more evident in twenty-four, or nineteen percent. A structural-functional approach was not common; only seven studies used this approach and only one could be identified as following a legal approach. (See Table 6)

TABLE 6. PRIMARY THEORETICAL ORIENTATION OF WORKS EVALUATED

Orientation	Number	Percent
Non-scientific:		
A priori, experiential, ideological, or philosophical	35	27%
Scientific (empirical):		
Socio-psychological	40	31
Historical	21	16
Economic	24	19
Structural-functional (organizational)	7	5
Legal	1	1
Total	128	99

Section II: Methodology

As stated previously, four aspects of each study were examined by means of the evaluation instrument designed specifically to appraise: (1) orientation; (2) methodology; (3) results, conclusions, and recommendations; and (4) presentation and communication. Forty works were classified as basic research. Forty-seven were program evaluations and forty-one studies were in the narrative form. While all literature was evaluated for both internal and external validity, only basic research (forty works) and evaluation research (forty-seven works) were evaluated for their scientific methodology. The appraisal of program effectiveness posed special problems of measurement by objectives. A methodology section was added dealing specifically with goals and objectives. Narrative literature (forty-one pieces) was also a special problem. The canons of strict research could not be applied to these accounts. A third methodology subsection was specially developed for narrative literature. Thus three methodological subsections were developed to test the internal and external validity of (1) Basic and evaluative research literature in general using the strict canons of scientific research (2) Program evaluation by objectives and (3) Narrative Form Evaluation.

Methodology - Basic and Evaluative:

All eighty-seven empirical studies were examined for their internal and external validity. For the purposes of this evaluation, the internal validity of a study is defined as that characteristic which follows when no logical errors are detected in the plan of the research, either in the research design, in its method of data collection, in the analysis of the findings, in the deductions or conclusions, or in the process of formulating recommendations. Thus internal validity refers to the correct and logical form of methodology, not to its content or its truth. The findings and conclusions will be true when the form is valid and factual observations are true.

Research derives its validity from one source, namely, its logical form, while it derives the truth content of its generalizations from two sources, the factual truth of empirical observations and the validity of its logical form. Thus the validity of research findings and conclusions are guaranteed only when the potential sources of errors are guarded against, as when logical fallacies are carefully avoided. The internal validity of research is, therefore, vulnerable at every stage of the research process.

Internal Validity

Internal validity is basically a question of control, without which the experiment is uninterpretable. Certain questions arise: did, in fact, the experimental treatments make a difference in this specific experimental instance? Did X, the independent variable, produce the difference or variation observed in Y, the dependent measure, or is it possible that the observed differences could be accounted for by some other uncontrolled extraneous variables. Still another question is: Did the design rule out, as far as possible, other hypotheses over and above the one proposed in the research? Donald

Campbell (1973) had enunciated nine possible sources of threats to internal validity. These sources, if not controlled in the experimental design, might produce effects which confound the effect of the experimental stimulus. Campbell's nine potential threats are:

> History: events other than the experimental treatment, occurring between pre-test and post-test and thus providing alternate explanations of effects.
>
> Maturation: processes within the respondents or observed social units, producing changes as a function of the passage of time per se, such as growth, fatigue, secularizing trends, etc.
>
> Instability: unreliability of measures, fluctuations in sampling persons or components, autonomous instability of repeated or "equivalent" measures.
>
> Testing: the effect of taking a test upon the scores of a second testing. The effect of publications of a social indicator upon subsequent readings of that indicator.
>
> Instrumentation: in which changes in the calibration of a measuring instrument or changes in the observers or scores used may produce changes in the obtained measurements.
>
> Regression artifacts: pseudo-shifts occurring when persons or treatment units have been selected upon the basis of their extreme scores.
>
> Selection: biases resulting from differential recruitment of comparison groups, producing different mean levels on the measure of effects.
>
> Experimental mortality: the differential loss of respondents from comparison groups.
>
> Selection-maturation-interaction: selection biases resulting in differential rates of "maturation" or autonomous change (pp. 281-282).

Not all potential dangers posed equal threat to the validity of research on the disadvantaged populations. History, maturation, and testing were definite weaknesses in many of the post-test designs assessed. Instrumentation and selection were common threats to most designs while mortality, the loss of the original sample through non-response, jeopardized not only longitudinal studies, but also studies relying on questionnaire forms of data collection. Interaction effects of selection-maturation also threatened many post-test designs. Generally a combination of random selection of the sample and a random assignment of subjects to the control and experimental groups act as safeguards against threats to validity. Nevertheless, factors such as mortality can only be handled by costly follow-up procedures.

Using seven of Campbell's classes of sources which jeopardize internal validity as checks, we obtained the following overall results in evaluating the eighty-seven works of basic and evaluative research. (Table 7)

TABLE 7. POTENTIAL SOURCES OF INVALIDITY OF RESEARCH DESIGNS (N=87)

Source	Adequate Control	Definite Weakness	Questionable	Missing	DNA
History	3	6	16	33	29
Maturation	5	3	20	28	31
Testing	8	4	22	24	29
Instrumentation	8	3	24	24	28
Selection	9	7	20	24	27
Mortality	2	1	25	25	34
Interaction	0	1	16	29	41

The large number of missing controls for each category of potential dangers to validity should not be construed to mean that such controls were not actually applied. It merely indicates that it was not clear whether or not these controls were put into use. Nevertheless, we cannot overlook the fact that a considerable number of studies were internally weak on several measures, not just one. Few designs were totally adequate. Perhaps such defects to some degree must be expected in quasi-experimental designs--the most commonly used in the area of equalizing educational opportunities for the disadvantaged.

Research Designs and External Validity

Research designs must also address themselves to the question of external validity which raises the issue of representativeness or generalizability. If, for example, we have derived a particular finding through an experimental circumstance, are we capable of generalizing from that situation to other untested populations? This has been a perennial problem in studies that are conducted with pretested groups and in unnaturally contrived experimental situations.

The general problem related to analytical designs in this content area dealing with the disadvantaged is particularly apparent in two somewhat related dimensions: representative sampling which permits valid generalization to a designated population, and ecological representativeness which is the ability to lift a study out of its local geographical context and generalize to other settings. Both of these individual problems are apparent in much of the assessed literature. With regard to representative sampling, intact groups were used in several studies, groups that were selected on the basis of convenience, accessibility, or some other criteria. Even if such groups met a specific operational definition of disadvantaged, such as low income, they could not automatically be regarded as truly representative of an established population.

The second problem, ecological representativeness, arose from the scarcity of general national surveys and the fact that much of the research was concentrated in certain geographical areas, for example, in California and New York. Because no significant amount of the research was randomly distributed, it meant that one was better informed about some areas than about others. Further, it remained somewhat debatable how far one could take the findings of an area and assume that they were representative of a previously unresearched area. Can findings, for example, that were presented on the disadvantaged in California be easily transferred to the disadvantaged of Maine? Or, if a particular program had demonstrated success in California, will this program be successful in Southern states where the school system itself, as well as related facets, may have a high degree of variance from the state of California?

External validity, therefore, refers not so much to the actual design as to the results of the design, namely, to the findings and conclusions. Two measures of external validity were used: the criterion of adequate sampling procedure upon which the validity or generalizability is based, and the question of the conformity to other studies, or consistency with other findings.

We will deal first with the sampling procedure found in the literature as this is the most critical aspect of external validity. Then we will proceed to the study of individual findings, conclusions, and recommendations in order to assess their external validity. It is more logical and useful to evaluate individual findings, conclusions, and recommendations; one finding or conclusion may be generalizable within a given study, while other may not.

Sampling

The question of sampling adequacy, as it related to the literature dealing with equalizing educational opportunties, was unquestionably one of the major areas of discomfort in the assessment of research in the area of the disadvantaged population. We will examine both the representative quality of the sample and the size/proportionate factor, and subsidiary but related problems.

It has generally been regarded as a scientifically accepted tenet that random procedures of sample selection, based principally on probability theory are an effective means of insuring sample representativeness. By use of a random sample, we are not only able to estimate population values but also have the additional advantage of ascertaining the probable estimate of error. Most of the research, eighty percent, did not employ random methods of sample selection; and only seven percent of those who did use random procedures reported any estimate of probable sampling error.

In lieu of random sampling, twenty-four percent of the evaluated studies resorted to other non-probability and "purposive" samples. Intact samples were frequently derived on the basis of researcher convenience, self-selection on the part of sample participants, or some other selective mechanism for choosing a sample. The bias that was inherent in the alternatives to randomization is self-evident. Fifty-six percent of the studies failed to specify the type of sampling employed.

Sampling Unit

Fifty-five percent of the literature used students as the sampling unit; twenty-five percent use institutions and eighteen percent used programs. Students were expected to be a frequently used sampling unit. It is interesting, however, that components of programs were not more frequently ultilized as the basic units of analysis.

Statistics and Their Applications to Assessed Works

As with basic and applied research, the general statistics implemented in this area of evaluative research can logically be grouped into two categories, descriptive and inferential. There were no specific problems in the first category: much of the data was presented in simple frequencies and percentages which are additive and present little difficulty to interpret. Inferential statistics, however, can present problems, particularly when a choice has to be made regarding the model appropriate to specific data which involves the testing of a null hypothesis. The problem lies in meeting certain assumptions before a statistical test can be applied. Hence, prior to the application of parametric statistics, such as a student's T-or F-test (tests with a higher degree of power efficiency than the non-parametric statistics), the following assumptions, provided by Sidney Siegel (1956) should be met:

> - The observations must be independent. That is, the selection of any one case from the population for inclusion in the sample must not bias the chances of any other case for inclusion, nor the score which is assigned to any other case.
> - The observations must be drawn from normally distributed populations.
> - The variables involved must have been measured in, at least, an interval level scale.
> - The means of these normal distributions must be linear combinations of effects due to columns and/or rows. That is, the effects must must be additive. (p. 19)

Parametric Statistics

Essentially parametric statistics should be used when the conditions specified by Siegel are met. Being a more powerful set of statistical tests than the non-parametric which do not require adherence to the stringent requirements, parametric statistics can reject the null hypothesis in a more efficient manner when it should be rejected. However, if the assumptions are not met, it is not only difficult to ascertain the power of the particular test but also to assess the meaningfulness of the probability statement derived from the hypothesis under consideration (Siegel, p. 20).

There are certain, select research studies which unquestionably violate some of these required assumptions but nevertheless use parametric tests. For example, certain studies failed to gather their samples randomly (assumption 1). In others, the measurement level was questioned; it cannot always be assumed that the grades awarded in courses meet the interval level measurement requirement (assumption 3). It is also questionable whether the populations from which such samples were drawn were normally distributed in the characteristic being measured (assumption 2).

Basic research has frequently been criticized because inappropriate statistical models had been used. Consequently, it is not surprising to meet the same problem in evaluative research in the area of equalizing educational opportunities.

In sum, although certain studies can invariably be questioned on their use of certain statistical models, general statistical problems are by far overshadowed by other methodological concerns. Sample inadequacy in general outweighed many of the unique problems apparent in other statistical operations.

Measures of Reliability and Validity of Instruments Used in Data Collection

Two crucial questions determining the value of measuring instruments were consistently raised: Was the instrument valid, that is, did it measure what it purported to measure? Was it reliable, i.e., upon repeated application of the measuring device would one obtain the same or similar results? These considerations were not totally independent of one another because in general, extreme fluctuations in an instrument would invariably affect its validity.

The validity of an instrument has a number of aspects. Consequently, we can speak of different forms or types of validity. Pragmatic forms include two types: concurrent and predictive. The former, concurrent, is the ability of the instrument to distinguish between groups by a given characteristic in a present situational context. The latter, predictive, assesses the instrument in terms of differences predicted for a future time, e.g., the SAT scores have predictive validity if performance on this instrument can predict college achievement. Two other forms of validity, construct and content, are oriented toward more abstract considerations. Construct validity looks more into the theoretical structure underlying the particular instrument, while content validity attempts to assess the instrument in terms of its representativeness or sample adequacy. For example, do the basic items in an intelligence test measure all that is implied in the construct of intelligence? Because of these difficulties, in the empirical studies assessed, validity was more often assumed than objectively tested or proven. Only one study confronted predictive validity, and none determined constructive, content or concurrent validity. Face validity was most prevalent, found in fourteen studies, as illustrated in Table 8.

TABLE 8. VALIDITY OF MEASURING INSTRUMENT

Type of Validity	Number	Percent
Face Validity	14	16%
Concurrent Validity	0	0
Predictive	1	1
Content	0	0
Construct	0	0
None Indicated	72	83
Total	87	100%

This same comment can be made in regard to reliability. In sum, there were few checks on the reliability of measures implemented. Various techniques for determining reliability exist, such as, split-half technique and test-retest, but were utilized so infrequently that it could safely be concluded that there was a serious lack of reliability estimation in this specific research area as seen in Table 9.

TABLE 9. RELIABILITY OF MEASURING INSTRUMENT

Reliability	Number	Percent
Split-half Reproducibility	0	0
Coefficient	2	2
Inter-test Reliability	0	0
Other	1	1
None Indicated	84	97
Total	87	100

In sum, a major area of concern is the reliability and validity of measurement instruments. Little attention was devoted to this issue by most of the research. In general, reliability and validity were assumed. Measurement was chiefly nominal and ordinal.

Summary of Statistical Procedures

Three major weaknesses became evident: the assumption of distribution; the suitability of the sampling design, and the attainment of measurement levels. Table 10 presents the frequencies for each question asked regarding the statistical procedures used.

TABLE 10. STATISTICAL PROCEDURES (N=61)

Questions	Adequate	Inadequate	Questionable
Are the measurement levels required by the statistics attained?	31	17	13
Does the sampling design fit the statistics?	28	22	11
Is the assumption of distribution justified?	11	22	28
Are the statistics used consistent with the research design?	55	5	1
Are the statistical results correctly interpreted?	41	9	11

Methodology: Program Evaluation by Objectives

Program evaluation cannot exist in a vacuum. Concrete programs are effective to the degree that their specific objectives are attained. Without a clear statement of objectives, evaluative research cannot even begin. Given the underlying significance of specific program objectives to be evaluated, it was not difficult to understand why so many evaluation studies which failed to define these objectives were inadequate. Project evaluation, however, requires not only a clear statement of objectives, but a statement of the criteria of outcomes as well.

In the forty-seven studies dealing with programs which we examined, we found that none explicitly indicated the specific standards of outcomes in measurable terms; seventy-two percent identified the standards of outcomes in a general or confused manner; twenty-eight percent did not specify any standards of outcomes. Table 11 presents more clearly the tabulations of percent and the number of works which specified program outcomes.

TABLE 11. STANDARDS OF SPECIFIED PROGRAM OUTCOMES (N=47)

Criteria	Number	Percentage
Adequate		
In measurable terms	0	0
Inadequate		
In general or confused manner	34	72
Missing		
Standards not specified	13	28
Total	47	100

For the purposes of evaluation and, indeed, for the effective attainment of objectives, it is essential to specify both long-term and short-term objectives. In general, our investigation showed long-term objectives to be defined adequately. It is generally accepted that a long-term goal or objective is one which is expected to be achieved in fifteen years or more; a medium-term goal in five to fourteen years; and short-term goals in approximately four years. For the purposes of evaluation, however, even more refined temporal objectives must be established, such as, the immediate output of a component or of a complete program in terms of hours, days, or months. An immediate component and program outcome, we feel, lies at the heart of all scientific evaluation, but it was absent in the programs evaluated. Table 12 illustrates how many evaluation studies ordered their objectives, according to duration and a specified time for their attainment. Only twelve studies, or twenty-six percent of those examined, were adequate and acceptable.

Failure to measure properly program effectiveness rendered estimation of efficiency impossible in terms of the ratio of inputs to outputs stated as the number of units of time, money, manpower and resources per unit of outputs. Moreover, it is not sufficient to evaluate the effectiveness and efficiency of a program.

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TABLE 12. ORDERING OF GOALS/OBJECTIVES ACCORDING TO LONG/SHORT TIME SPECIFICATIONS (N = 47)

Criteria	Adequate		Inadequate		Missing	
	Number	Percent	Number	Percent	Number	Percent
Goals/objectives were ordered according to long/short term time specifications	12	26%				
Goals/objectives were ordered according to long/short term but time alotted for attainment was not specified			6	13%		
Goals/objectives were not ordered according to long/ short term time specifications					29	62%

Equity, third determinant of a good program, is also necessary. Equity is always involved with distributive justice and with the process of action programs. Equity considers towards whom (target population) the efforts of the program are directed. Because of limited funds all programs must direct their efforts according to priorities which ought to be determined by the standards of equity. Table 13 indicates that evaluations rarely specified standards of equity.

Methodology - Narrative Form

The methodology of many of the works studied could not be fairly evaluated by the strict canons of research. These works were included in the study, however, because they provided further insights and could be used to check the

TABLE 13. OJBECTIVES ORDERED ACCORDING TO STANDARDS OF EQUITY

Criteria		Number	Percent
Adequate		9	19
Inadequate		7	15
Missing		31	66
Total	(N=47)	47	100

consistency of the findings and the thinking of other studies in the area of equalizing postsecondary education. Only those articles which were based on empirical data were included; the "my experience" narratives were rejected.

Five basic questions were asked about narrative works: Were they accurate regarding empirical data and future projections? Were the sources used trustworthy? Were the facts quoted relevant? Were the facts significant? Was the structure logical? Evaluators were then asked to describe the structural steps of the study and evaluate its design from the point of view of logic and to determine whether the presentation was designed to persuade its audience. The use of factual data was evaluated from the point of view of trustworthiness of sources, accuracy relevance, and significance. Table 15 enumerates the frequency of responses to these questions for the forty-one works evaluated by the narrative form. The studies were more logical, seventy-three percent than persuasive, thirty-two percent.

TABLE 14. STRUCTURE OF NARRATIVE STUDIES (N=41)

Response	Logical		Persuasive	
	Frequency	Percent	Frequency	Percent
Yes	30	73%	13	32%
Questionable	5	12	12	29
No	6	15	13	32
DNA	0	0	3	7
Total	41	100	41	100

With regard to factual data, Table 15 enumerates responses to a number of questions: Were the sources adequate and trustworthy? Were the facts employed relevant and significant? The majority adequately quoted trustworthy sources to support their positions.

TABLE 15. SOURCES OF FACTUAL DATA (N=41)

Response	Adequate		Trustworthy	
	Frequency	Percent	Frequency	Percent
Yes	31	76 %	30	73 %
Questionable	6	15	9	22
No	3	7	1	2
DNA	1	2	1	2
Total	41	100	41	99

Section III: Evaluation of Findings, Conclusions and Recommendations

From the 128 works evaluated, 521 findings, 203 conclusions and 260 recommendations were categorized and individually assessed.

Findings

Findings were evaluated for accuracy, bias and significance. Of the 521 findings enumerated, Table 16 shows eighteen findings, or 3.5 percent, were judged superior, and 289 findings, or fifty-five percent, were adequate; while forty-two percent or 214 were defective.

TABLE 16. ACCURACY OF FINDINGS (N=521)

Accuracy	Frequency	Percent
Superior: Positive checks against errors were included in procedure regarding conceptual and operational definitions, theoretical approach, data gathering, and statistical analysis.	18	3 %
Adequate: Errors unlikely with procedures used; no errors detected.	289	55
Substandard: Errors likely with procedures used; no major errors detected.	180	35
Defective: Errors of calculations, transcriptions, dictation, logic, fact, or definitions.	34	7
Total	521	100

Similar results were found on the criterion for bias, as illustrated in Table 17.

TABLE 17. FINDINGS: PRECAUTIONS AGAINST BIAS

Evaluation	Number	Percent
Superior: Positive precautions against bias were included in the procedure.	30	6%
Adequate: No evidence of bias was detected.	328	63
Substandard: Evidence of bias was detected.	150	29
Defective: Strong evidence of bias was detected.	13	2
Total	521	100

These figures are understandable because the method used in 63 percent of the literature was either descriptive, 48 works, or exploratory, 32 works. Likewise, 42 percent of the 128 pieces of literature used secondary sources, the most common being the U. S. Census. Two other important sources of data analysis were Project TALENT data and the data from the Wisconsin studies. Nevertheless, 214, or 41 percent of the 521 findings, were found defective or substandard. In other words, the factual data on the findings in well over 50 percent of the studies were acceptable as valid. In estimating the measure of significance to policy-makers, 111, or 21 percent, were judged highly significant; 218, or 42 percent were estimated to be of medium significance; and

190, or 37 percent, were judged of little or no significance. Table 18 provides the measurement on the criterion of significance.

TABLE 18. FINDINGS: SIGNIFICANCE (N=521)

Evaluation	Number	Percent
High: This finding was of importance to an understanding and solution of the problem on a national, regional, or state level.	111	21%
Medium: This finding has potential to influence future work in the area of the disadvantaged.	218	42
Low: It is possible that this finding will have influence on future work, but not likely.	170	33
None: The finding is not significant to the understanding, solution, or study of the problem.	33	4
Total	521	100

While these findings cannot be universalized to all literature on equalizing educational opportunities, it must be remembered that our sample, 128 studies, was selective in terms of quality and relevance. The picture for the entire body of literature on equalizing educational opportunities regarding validity and significance of findings would probably not be any better.

Evaluation of Conclusions

The 203 individual conclusions evaluated for internal and external validity were rated on a three-point scale: adequate, not adequate, and questionable. There was a tendency for the investigators to draw conclusions not warranted by their findings. While these conclusions may be true, many were not substantiated by adequate data. Again the importance of making a distinction between validity and truth cannot be overemphasized. Validity must not be confused with truth. Conclusions may be valid but false, and true but invalid. Validity refers to the manner of inference, not to the truth of the inference. This applies both to internal and external validity.

We found that 149, or seventy-two percent of the conclusions, could be accepted as valid, that is, based on logically empirical facts; fifty-seven, or twenty-eight percent, had to be rejected as either questionable or invalid. An inadequate sample hindered external validity in most cases. Only sixty-one, or thirty percent, could be accepted as having external validity to be generalized to other populations, settings, or treatments; 142 or seventy percent of the conclusions, were rejected as having questionable or no generalizability.

Regarding consistency with other conclusions and findings in the field, sixty-six, or thirty-two percent, were consistent with most other findings and conclusions; seventy-nine, or thirty-nine percent, were consistent with other findings; fifty-eight, or twenty-eight percent, were judged as having questionable or no external consistency.

TABLE 19. EVALUATION OF CONCLUSIONS (N=203)

Internal Validity			External Validity					
			Generalizability			Consistency		
Evaluation	Number	Percent	Evaluation	Number	Percent	Evaluation	Number	Percent
Adequate	146	72%	Adequate	61	30%	With most	66	33%
Inadequate	46	23	Inadequate	91	45	With some	79	39
Questionable	11	5	Questionable	51	25	With none	9	4
						Questionable	49	24
Total	201	100		203	100		203	100

Recommendations

The culmination of evaluative research lies in the recommendations made to policy-makers. In the policy research process, the advocacy of recommendations is appropriate only after the information is presented objectively. The execution of the research must be governed by disciplinary or scienfitic research values. Research results must be reported objectively and openly according to the canons of scientific research values. However, when the researcher approaches the point of recommendations, he re-enters the complex real world of politics, law, and economics, and touches on cultural beliefs, norms, and values. Thus, recommendations imply advocacy based on personal values as well as objective facts.

Effective recommendations must, therefore, take cognizance of the reality limitations imposed by the boundaries of the many systems which specify the range within which a recommedndation is feasible. Consequently, recommendations are difficult to evaluate, for being closer to reality, they are at once more concrete and yet more complex.

Number of Recommendations Evaluated

The greatest number of recommendations evaluated in our study appeared either in the reports of special task forces, the Carnegie Commission reports, or government sponsored research. Because basic research is undertaken to further knowledge and not for the purpose of recommending policy changes or innovations, it is generally devoid of recommendations. We chose for evaluation those recommendations we felt to be most policy relevant, selecting 260 recommendations for individual consideration and evaluation according to our established criteria (Appendix B). Figure 1 portrays the model employed in our evaluation of the recommendations.

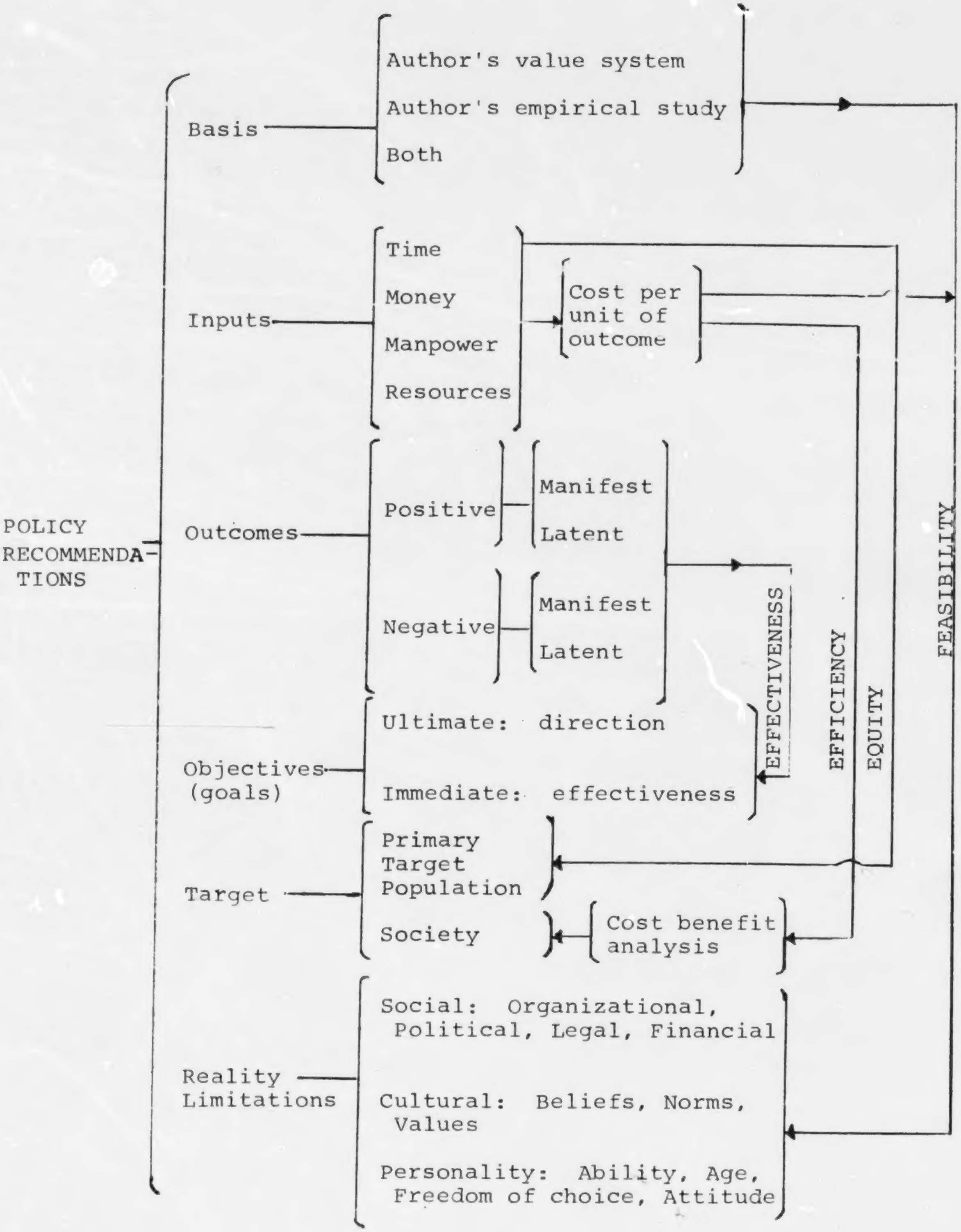
POLICY RECOMMENDATIONS
Basis
Author's value system
Author's empirical study
Both
Inputs
Time
Money
Manpower
Resources
Cost per unit of outcome
Outcomes
Positive
Negative
Manifest
Latent
Manifest
Latent
Objectives (goals)
Ultimate: direction
Immediate: effectiveness
Target
Primary Target Population
Society
Cost benefit analysis
Reality Limitations
Social: Organizational, Political, Legal, Financial
Cultural: Beliefs, Norms, Values
Personality: Ability, Age, Freedom of choice, Attitude
EFFECTIVENESS
EFFICIENCY
EQUITY
FEASIBILITY

Figure 1. Model Used in Evalution of Recommendations

Basis of Recommendations

Because there is a legitimate place for advocacy based on personal values at the recommendation stage, the policy-maker must ask skeptically whether the basis of a recommendation is the author's value system, his objective findings, or both. Our evaluation of recommendations showed that of the 260 recommendations only thirty-five, or 13.5 percent, were based on the author's research findings; 104, or forty percent, were based on the author's value system, rather than empirical data; 120, or forty-six percent, were based on the author's value system and on his empirical findings. This observation illustrates the powerful role of personal values in policy recommendations.

Definition of Equality

Not all recommendations are derived or sustained by the same definition of the equality they seek to attain. Three main approaches or definitions could be distinguished in the body of recommendations evaluated: 1) The equality of opportunity for postsecondary education with differential results according to the ability and desires of the students, was implied or stated by the majority--128, or forty-nine percent; 2) Equality of opportunity for life success, as evidenced in equality of income, was implied by seventy-one, or twenty-seven percent, of the recommendations, and 3)

Equality of opportunity in order to gain general equality of postsecondary educational results was implied by thirty-eight, or fifteen percent, of the recommendations. An extreme definition of equality, that equality of opportunity as measured by flat equality of grade point averages and degrees, regardless of ability or effort, was not the basis for any of the recommendations.

Policy Recommendations

A policy recommendation is one that does more than indicate that groups (blacks, Indians, rural whites) are disadvantaged as to education, income, or study skills; it specifically indicates how to overcome these problems. Ultimately, these recommendations are of overriding importance to policy makers. If policy makers wish to raise levels of education, they want to know how such things as open access and financial aid will facilitate the accomplishment of this goal.

Of the 260 recommendations evaluated, 167, or sixty-four percent, were judged to be policy recommendations; fifty-eight, or twenty-two percent, were questionable; four, or two percent, could not be classified as policy recommendations; and thirty-one, or twelve percent, could not be judged for policy relevance because of the nature of the study.

Another critical aspect of a policy recommendation is whether the independent variable was a policy variable, that is, was it within the power of the policy maker to manipulate the variable. Our evaluation showed that 190 or seventy percent of the recommendations employed manipulable variables; forty-five, or seventeen percent, were questionable in this classification; and less than one percent did not use variables which the policy maker could manipulate. This criterion did not apply to twenty-three, or 8.4 percent, of the recommendations. These results are listed in Table 20.

TABLE 20. POLICY RECOMMENDATIONS AND MANIPULABLE VARIABLES

Evaluation	Policy Recommendations		Manipulable Independent Variable	
	Number	Percent	Number	Percent
Yes	167	64	190	73
?-able	58	22	45	17
No	4	2	2	0.8
DNA	31	12	23	8.4
Total	260	100	260	99.2

(N=260)

Validity of the Recommendations

Does the recommendation follow logically from the results of the study, or is it in conformity with the results of the study? This question affects the validity of the recommendations. A second criterion of validity is whether the recommendations are consistent with the goals which the investigator espoused. On both accounts, the majority of recommendations were judged at least having face validity.

TABLE 21. VALIDITY OF RECOMMENDATIONS (N=260)

Response	Consistency with Findings		Consistency with Objectives	
Yes	188	72%	226	87.0%
?-able	49	19	9	3.5
No	7	3	1	0.4
DNA	16	6	24	9.0
Total	260	100	260	99.9

Our next concern was related to policy and the course of action which was recommended. Table 22 illustrates the number and percent of recommendations suggesting the following policy:

TABLE 22. RECOMMENDED COURSE OF ACTION IN RELATION TO POLICY

Response	Number	Percent
Continuation of existing policy	13	5%
Total alteration of existing policy	5	2
Modification of existing policy	228	88
DNA	14	5
Total	260	100

(N=260)

Relative to goals we asked the question, did a recommendation advocate or imply:

- total change of goals,
- modification of goals,
- no change of goals?

Our findings, shown in Table 23, indicate that most of the recommendations advocated a modification of present goals. Findings with regard to goals and policies were partly inconsistent. A larger number advocated a total change of goals than a total change of policies. The majority, however, preferred some modification of present goals and policies.

TABLE 23. RECOMMENDATIONS IN RELATION TO GOALS (N=260)

Response	Number	Percent
Total change	76	29%
Modification	126	48
No change	4	2
DNA	54	21
Total	260	100

Objectives may be either long-range or short-range and recommendations may be categorized as to whether they are aimed at long- or short-term objectives. Classifying objectives by this criterion, we obtained the following table.

TABLE 24. LONG- AND SHORT-RANGE OBJECTIVES (N=260)

Response	Number	Percent
Long-range	138	53%
Short-range	10	4
Neither	33	13
DNA	79	30
Total	260	100

Specification of Inputs: Time, Money, Manpower and Resources

The first question concerning inputs is clearly what are the inputs in terms of time, money, manpower, and resources implied by this recommendation. Most recommendations were deficient in spelling out the cost inputs of implementing the recommended action. Percent of recommendations considering cost of effort in terms of money, time, and manpower are illustrated in Table 25.

TABLE 25. INPUTS IN TERMS OF TIME, MONEY, AND MANPOWER ESTIMATED (N=260)

Response	Money		Time		Manpower	
	Number	Percent	Number	Percent	Number	Percent
Yes	60	23%	21	8%	11	4%
?-able	34	13	50	19	51	20
No	158	61	179	68	190	73
DNA	8	3	10	4	8	3
Total	260	100	260	99	260	100

Specification of Outcomes

Outcomes are the positive or negative results of a major program or components of programs. When a researcher recommends specific outcomes, he should properly specify the relationships between the dependent (outcome) and independent (both treatment and control factors) variables. The development of measures of program or project outcomes is a major technical problem in all types of evaluative studies.

The outcomes, critical to policy recommendations, may be manifest, that is, expressly intended and foreseen or latent and not intended or foreseen. While policy makers must take heed of manifest negative effects of programs or components of programs, it is even more important for policy makers to take cognizance of the negative latent effects which may in time have devastating counterproductive effects.

Table 26 illustrates the nature of the outcomes considered in our evaluations. The manifest positive outcomes were emphasized, often to the exclusion of any consideration of manifest and latent negative effects. This omission was a serious defect in the literature on equalizing educational opportunities for the disadvantaged. It is important that negative outcomes be clearly understood and their implications carefully considered.

TABLE 26. MANIFEST AND LATENT OUTCOMES REPORTED

Response	Manifest				Latent			
	Positive		Negative		Positive		Negative	
	N	%	N	%	N	%	N	%
Yes	117	45%	1	0.4%	17	7%	1	0.4%
?-able	23	9	26	10	25	10	26	10
No	107	41	216	83	204	78	216	83
DNA	13	5	17	7	14	5	17	6.6
Total	260	100	260	100	260	100	260	100

Effectiveness

The effectiveness of a recommendation is simply a question of whether or not the suggested recommendations regarding inputs of time, money, manpower, and resources, or changes in structure of process are adequate to attain their objectives. Effectiveness must not be confused with efficiency which describes how well the objectives are being obtained. Here the question is simply whether these recommendations can obtain their objectives. True measures of effectiveness require that immediate objectives be carefully spelled out in measurable terms.

Table 27 indicates that most of the recommendations were deficient in self-evaluation regarding effectiveness.

Assumptions, not demonstrations of potential effectiveness, were more prevalent.

TABLE 27. DEMONSTRATED EFFECTIVENESS OF RECOMMENDATIONS

Response	Number	Percent
Yes	32	12%
?-able	25	10
No	196	75
DNA	7	3
Total	260	100

(N=260)

Very few authors considered the efficiency of their recommendations and those who did, did so only from the point of view of the input of money, interpreting cost-effectiveness in a strictly economic sense. The following table enumerates the number and percentage of those studies which made a cost-effectiveness study of proposed recommendations.

TABLE 28. EFFICIENCY OF PROPOSED RECOMMENDATIONS (N=260)

Response	Number	Percent
Yes	11	4 %
?-able	91	35
No	151	58
DNA	7	3
Total	260	100

Equity

Thirty-two percent of the recommendations took equity into consideration. The majority, however, did not consider the policy aspect of equity.

TABLE 29. CONSIDERATION OF EQUITY IN PROPOSED RECOMMENDATIONS

Response	Number	Percent
Yes	82	32%
?-able	48	18
No	123	47
DNA	7	3
Total	260	100

(N=260)

Considered Reality Limitations

The feasibility of a recommendation is closely bound up with the question of whether the action proposed has the potential to achieve fruition. Accomplishing proposed recommendations takes cognizance of reality limitations, that is, does the recommendation keep within the range of the following boundaries:

- economic boundaries of policy makers
- political boundaries, such as, pressure groups, invested interests, popular feeling
- legal boundaries
- social boundaries, such as, values, belief, norms (including ethical)
- personality boundaries of disadvantaged group
- time boundaries (deadlines)
- location boundaries
- resource boundaries (availability)

Thus the boundaries within which the policy action recommended will operate and the major systems upon which the recommendations will impinge must be given careful attention.

In our examination of the 260 recommendations with regard to the limitations imposed by the general cultural system, we found recommendations to be within acceptable cultural boundaries of belief and values. (See Table 30.)

TABLE 30. REALITY LIMITATIONS: BELIEFS AND VALUES (N=260)

Response	Beliefs		Values	
	Number	Percent	Number	Percent
Yes	153	50%	99,	38%
?-able	67	26	60	23
No	4	2	0	0
DNA/Missing	36	14	101	38
Total	260	100	260	100

In the areas of social boundaries, however, we found there was a general weakness. Social boundaries imposed by political, legal, and economic systems, as well as the organizational realities of the society demanding serious attention by policy makers and policy researchers were given insufficient consideration, as Table 31 illustrates.

TABLE 31. BOUNDARY LIMITATIONS OF PROPOSED RECOMMENDATIONS

Response	Political		Organiz.		Financial		Legal	
	N	%	N	%	N	%	N	%
Yes	71	27%	69	26%	115	44%	68	26%
?-able	161	62	162	62	114	44	162	62
No	2	1	2	1	2 2	1	2	1
DNA	26	10	27	10	29	11	28	11
Total	260	100	260	100	260	100	260	100

Meeting deadlines, so essential to policy making, were rarely mentioned as is evident from Table 32.

TABLE 32. RECOMMENDATIONS CONSIDERING DEADLINES (N=260)

Response	Number	Percent
Yes	69	27 %
?-able	146	56
No	18	7
DNA	27	10
Total	260	100

SECTION IV
COMMUNICATION AND PRESENTATION

The traditional research process emphasizes research for the sake of pure knowledge rather than the utilization of research results. Because utilization is a very critical aspect of policy research, the manner of presenting and communicating research results takes on special dimensions. Often a bridge separates the policy makers from the researchers; one may well speak--without communicating. What the policy maker perceives may not be what the researcher intended. James Coleman (1972) describes another problem when he states that the transmission of results may be largely "controlled by the investigator of the discipline, and thus be governed by disciplinary values, or it can be largely controlled by the client who formulates the research problem, and is then governed by the values of an interested party to the action" (p. 13). There can be no general statement that the dissemination of results should always be controlled by one or the other party, or that results should be freely and openly disseminated. Control of dissemination is a question of prudence that must be answered on an individual case basis or through negotiation between client and investigator. The outcome depends at least in part on the degree to which one can justify his values to the other. However, there may also be cases in which the broader well-being of society transcends the interests of both the researchers and the client, and then the results should be openly and freely published.

Evaluative researchers are presently giving more and more thought to the dynamics of communication and presentation of findings, conclusions and recommendations.

Communication

The process of communication between researcher and policy maker has itself emerged as an integral stage in the evaluative process. Major communication points are recognized as the initiation stage, critical decisions regarding goals and methodologies, initial findings, and major recommendations. The process of communication involves not merely the written word but also face to face oral communication, through meetings, interviews and conferences with potential users. The mass media, perhaps, should also be included in the communication process.

The final written report is seen as only one of the stages of communication, and not necessarily the most important so far as influencing policy is concerned.

Recommendations involving change of goals or major shifts in policy must be preceded by a period of presocialization of the policy makers if they hope to be accepted. We tested the literature for indications that communication had indeed occurred at critical stages. This was done for the sake of completeness. Our expectation that final reports would have spoken of their communication process was borne out. Naturally we did not interpret the findings as a description of what actually happened. Table 33 revealed that little, indeed, was indicated concerning the communication process.

TABLE 33. COMMUNICATION WITH POLICY-MAKER

Response	During Process		Presocialization		Major Decisions		Conclusion		Follow-up	
	N	%	N	%	N	%	N	%	N	%
Yes	1	0.8	9	7.2	3	2	20	16	8	6
?-able	30	24	29	23	29	23	25	20	28	22
No	4	3.2	8	6	4	3	4	3	3	2
DNA 2	90	72	79	63	89	71	76	61	86	69
Total	125	100	125	100	125	100	125	100	125	100

Presentation of the Final Report

The greatest problem to be overcome in the presentation of research findings is unquestionably the gulf that exists between the scientific research world of specialized conceptual models of thought and expression, and the world of the politician or policy maker where both ideas and words have another flavor. Basic research language must be translated into layman's language. It is, indeed, no easy task for the policy researcher to speak to the world of politics and policy making. His logic must be equally the logic of persuasion as well as the logic of thought.

The final presentation ought to be interesting, readable, visually appealing and persuasive, with simplified graphic illustrations for clarity. The report should not be a mere skeleton outline or synopsis, but rather a complete presentation of findings, supporting generalizations with documentation and empirical data. In a word, the final report ought to be interesting, complete and comprehensible to the laymen. Fifty-two percent of the literature chosen for evaluation met, for the most part, the demands for completeness and comprehensibility as shown in Tables 34 and 35.

TABLE 34. PRESENTATION OF LITERATURE: COMPLETENESS

Response	More than summary		More than rewrite		Well documented	
	N	%	N	%	N	%
Yes	72	56 %	64	50 %	57	45 %
?-able	19	15	19	15	17	13
No	20	16	20	16	32	25
DNA	17	13	25	19	22	17
Total	128	100	128	100	128	100

TABLE 35. PRESENTATION OF LITERATURE: COMPREHENSIBILITY

Response	No jargon		Popular language		Visual devices	
	N	%	N	%	N	%
Yes	81	63%	72	56%	71	55%
?-able	7	5	13	10	11	9
No	26	20	31	26	25	20
DNA	14	11	12	9	21	16
Total	128	99	128	100	128	100

Recommendations for change in policy and goals, or major modification in less important matters have to compete with many sources of opposition. Using, therefore, the logic of persuasion, the researcher must keep in mind the three main sources of opposition to be expected from policy makers and other potential users: emotional opposition coming from attachment to present goals and policies; cognitive opposition to new ideas; and opposition due to loss from personal investments in and returns from the status quo. Table 36 illustrates that, in general, these major sources of opposition were not taken into consideration. Perhaps this may be an indication of a certain naivete on the part of policy researchers in dealing with the practical world of politics.

TABLE 36. PRESENTATION OF RESULTS IN ORDER TO OVERCOME RESISTANCE

Response	Emotional Opposition		Cognitive Opposition		Self-Interest	
	N	%	N	%	N	%
Yes	28	22%	30	24%	22	17%
?-able	63	49	66	52	67	52
No	25	20	19	15	22	17
DNA	12	9	13	10	17	13
Total	128	100	128	100	128	100

APPENDIX E.
DISSEMINATION PLAN

User Group Identification

Our research recommendations and findings are directed to educational policy makers and educational operating units of federal, state, regional and local government and the persons who manage key departments and programs for disadvantaged populations in postsecondary institutions.

Specifically groups and individuals expected to use our results can be identified by the following categories:

- Sponsors-National Science Foundation
- Federal, State, Regional educational commissions and departments
- Federal and State House and Senate Committees on Education
- Experts (those who have written extensively in the area of equalizing postsecondary educational opportunities for disadvantaged populations.)
- Institutions, Organizations and Associations for policy and basic research; for professionals.
- Participating Postsecondary Institutions: Colleges and Universities
- Persons and Organizations requesting copies.

Utilization Process Description

Specific steps needed to provide for dissemination and use of research results were taken during the research process. It is our belief that decision makers draw on numerous studies in deciding alternative programs or models. Likewise we believe that users must be educated in implementing and applying proposed programs and models.

Subsequent to completing our research study on "Evaluation of Policy-Related Research on Postsecondary Education for the Disadvantage", Janet Mulka and Edmund J. Sheerin submitted a 1,000 word article to the Detroit News which was published on May 10, 1972. This was in response to an article in the Detroit News and to the Controller General of the United States' "Report to the Congress: Problems of the Upward Bound Program in Preparing Disadvantaged Students for a Postsecondary Education." We agreed with the Controller General's report that programs such as the Federally sponsored Upward Bound Programs for disadvantaged students failed to use effective self-evaluation procedures--a weakness common to many of the programs we were investigating.

Likewise prior to completion, postsecondary programs and practices for equalizing educational opportunities for disadvantaged populations and evaluative research and policy making were discussed and debated during an all-day conference Saturday, June 22, 1974 at Mercy College of Detroit Conference Center.

Dr. Walter Williams, professor in the Graduate School of Public Affairs and director of research at the Institute of Governmental Research at the University of Washington, gave the keynote address on "Evaluation Research, Policy Analysis and Social Policy Making." Congressman Charles C. Diggs, Jr., discussed legislators and policy makers in relation to postsecondary school education of students from disadvantaged backgrounds.

Two panel discussions included six persons involved in the National Science Foundation (RANN) research project along with specialists from Wayne State University, University of Michigan, University of Detroit, Wayne County Community College administrating Special Student Services in their respective institutions.

Over 3,000 brochures announcing the June 22 conderence were sent to a random sample of community, four-year colleges and universities and to various community groups sponsoring educational programs for disadvantaged populations. Approximately 70 participants from eleven states representing various postsecondary institutions and programs (Urban League, Adult Education Programs) attended the all-day session.

Conference Feedback and Recommendations

A number of participants protested against required systematic evaluations by fund granting agencies. Feedback indicated that users (practitioners) need evaluation models, but they also want to learn how to use and implement them. Consequently, the paper presented by Edmund J. Sheerin, "The Developmental Systems Model as a Tool of Program Improvement and Evaluation," was considered very fruitful by the participants. General recommendations emerged from the day's proceedings.

#1 The annual funding of projects ought not be so dependent upon evaluations that projects and programs be contingent on a "go-no-go" decision.

Rationale: Use of evaluations as political tools engendered disapproval. It was felt that reducing evaluations to a "go-no-go" situation on an annual basis jeopardized the future and security of program personnel and participants. Many also felt that evaluations were in large part discriminating against minorities who presently rely on special services and compensatory programs.

#2 That more specific directions be given for data gathering techniques essential for evaluation purposes.

Rationale: After debate on the utility of evaluation, and Dr. William's persuasive talk many skeptics were convinced of the necessity of evaluation, not just for contract renewal purposes, but of greater consequence for program development and improvement at the implementation stage. The inevitability of evaluation was grudgingly accepted. Concern was manifest over the lack of adequate direction, training and assistance offered in the skills and process of program evaluation.

#3 The implementation of a systems model be demonstrated through workshops and/or seminars.

Rationale: The conference audience was convinced that complex theories and evaluation designs require demonstrated applicability. The actual day to day program monitoring demands techniques and skills not economically acquired on a trial-and-error basis. A desire was communicated for a full weekend workshop on the implementation of a monitoring system and the writing of the annual evaluative report on the effectiveness, efficiency, and equity of programs.